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OCTOBER, 1909

SELLING ELECTRICITY

The Magazine of Electrical Progress

If you have a friend in the business who is not receiving SELLING ELECTRICITY, send us his name and a dollar bill and we will extend your own subscription four months FREE.

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The Machinist Gets the Blame

How many manufacturers do you know who don't realize why their cost of production is so high?

They blame it on the machinist, never figuring the the time he has to waste adjusting belts and pulleys to change the speed of his machine.

Perhaps they have never had it brought particularly to their attention that line shaft transmission also wastes about 35 to 40 per cent of their power.

Why don't you show them that if they connect

Fort Wayne Motors

direct to their machines they would increase the quality and quantity of their work and cut in half the cost of operation.

Our Bulletin "Motor Drives" has a lot of talking points and data on this subject that makes sales easy if you go after them, and there is nothing better for building up a profitable load for the Central Station.

There's hardly any limit to the field as we make motors that will drive almost anything that requires power to run it.

If you have not seen a copy of this booklet you're handicapped. Better send for it today and learn the various uses to which a motor may be put and incidentally why Fort Wayne motors are superior.

FORT WAYNE ELECTRIC WORKS

Atlanta 1404 Broadway, Fort Wayne, Ind. Pittsburg
Boston Seattle
Cincinnati Milwaukee New Orleans St. Louis
Chicago New York Philadelphia St. Paul
Grand Rapids San Francisco
Madison Syracuse

THE "SUPERIOR" IRON

The final test of an electric iron is its efficiency on the ironing board.

The heat must be evenly concentrated on the working surface of the iron.

The iron must hold sufficient heat so that it will not cool suddenly when brought into contact with damp goods.

The **SUPERIOR** iron is such an iron and has many other merits we should like to tell you about.

American Electrical Heater Company

Oldest and Largest Exclusive Makers in the World

Detroit, U. S. A.

, 1909

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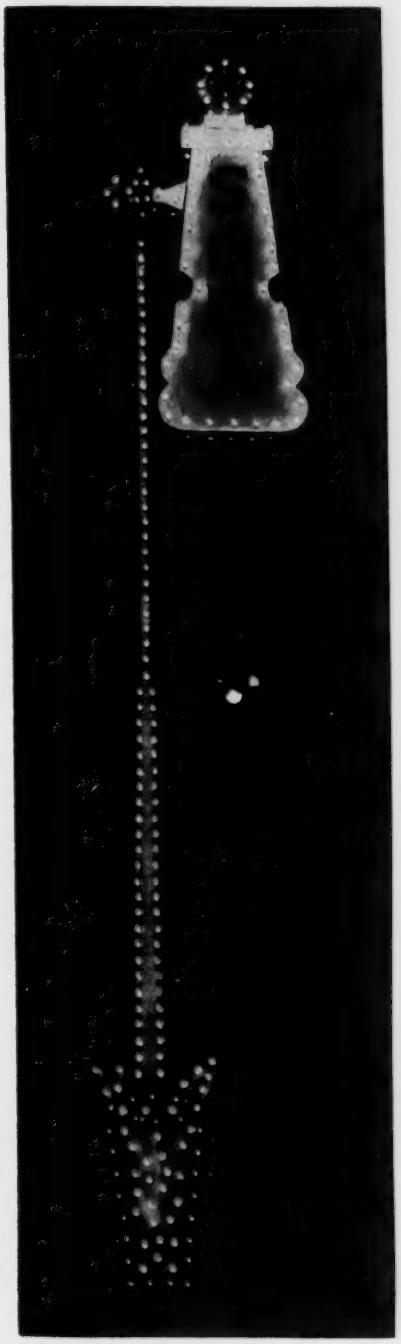
Brains in Valentine Signs



This design shows how we mix **brains,** sheet steel, wire, receptacles and paint together so as to get striking results.

We have erected dozens of signs like this. It represents a soda fountain 12 feet in height, set at the edge of the roof of the building shooting a stream of soda into a glass which is directly over the street entrance. The sign shows both ways, up and down the street, and is operated by a flasher of our own design. It is unique, clever, effective. It has **advertising value.** Compels attention.

This is the kind of sign the merchants of your city will buy **if the proposition is put up to them right.** We know how to design, make and **sell** this kind of sign. Let us sell some for you.

Write for our **new** proposition.

Valentine Electric Sign Company

Atlantic City, New Jersey

YOU NEVER HEARD OF AN
·A&W· SIGN
THAT DID NOT GIVE
SATISFACTION.
WE CAN TELL YOU
OF THOUSANDS
THAT DO.

WRITE FOR
BULLETINS.

THE·A&W·ELECTRIC SIGN CO.

·THE·LARGEST·ELECTRIC SIGN WORKS IN THE WORLD·

·CLEVELAND·OHIO·

SELLING ELECTRICITY

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"Life is just *one damn thing after another*" only to people who feel that way about it.

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SELLING ELECTRICITY

Vol. VI OCTOBER, 1909 No. 3

More About Motor Misinformation

THE editorial entitled "Motor Misinformation" in last month's SELLING ELECTRICITY seems to have created considerable interest. On the one side, the manufacturers of motor-driven apparatus are far from satisfied that the trouble is entirely due to the carelessness of central station subordinates: on the other, the central station man points out that the machine manufacturers are not without fault. The following quotations from letters show the characteristic attitudes. The first is from a prominent manufacturer of motor-driven drills, meat choppers, etc. He says in part:—

"Whenever we receive an inquiry from a prospective purchaser, we have a return postal card with our questions asked on it which we ask the inquirer to take to the central station to have them fill it out and mail. The following are a few results:

"1st. We get a good many of these cards back with the proper answers on them and we find that the central station is working in harmony with us just as closely as it possibly can. This results in our securing the order and getting a satisfied customer.

"2nd. In a good many instances we find that as soon as the central station man finds the prospect is in the market for some of our apparatus, he loses sight of the fact that we perhaps have spent a good many dollars in getting that man interested and immediately tries to sell him some other equipment, forgetting that there is a little honor sometimes in business transactions of this character. Not only that; he forgets to send us the card with the desired information, and in fact, we have had some central station managers write us and tell us that unless we used on our apparatus certain types of motors, made by certain manufacturers, they would not allow them on their circuits.

"This second subject, without a doubt, is one of the most serious problems that manufacturers of all motor-driven apparatus have to contend with. It is so serious that it has reached the attention of our salesmen. The matter was brought up by a number of our salesmen in various sections of the United States, requesting us under no conditions in the future to let the central stations know anything about our attempting to secure

orders in their territory until such time as our salesman had time himself to make a personal visit to the town and get the order fixed up before the central station man could knock him out on it.

"We hope that the day will come when every central station manager throughout the country will realize the fact that it is just as much to his benefit to work in harmony with manufacturers of our class of goods, and play fair with them, as it is with any other line of electrical apparatus. We think that you have stuck the keynote in your September issue on this subject and we trust that you will follow it up. The writer, personally, has come in contact with a number of manufacturers of small apparatus, not only in our particular line, but other lines as well, and finds that practically the same conditions exist with other manufacturers in connection with central stations, that I have spoken of in this letter, and I know that they will appreciate your article in the September issue of SELLING ELECTRICITY exactly as much as the writer does."

The other side of the story is abundantly taken care of by the following, from one of the more prominent metropolitan lighting companies:—

"I note with great interest your article on 'Motor Misinformation' in the September number and it occurs to me that your readers may be interested to know how some of this difficulty arises.

"Take the alternating current districts for instance. If a man has only one or two lights and, say, a fan motor it is obvious that the best and simplest installation is 110 volts, single phase.

"If a man has 2 or 3 hp. motor it is obvious also that the best installation is 220 volts, single phase.

"When a man has a 5 hp. motor, the time comes when it pays him to put in three phase.

"Now supposing a man starts with a small fan motor and then keeps on increasing until finally he has a 40 or 50 hp. installed, he will start with 110 volts, single phase motors that he already has and will finish up by ordering 220 volt, three phase motors.

"After, however, he has put in his three phase, 220 volt service, suppose he wants a half hp. motor. Since he has already the three phase, 220 volt service in, it will be simpler for him to make this half hp. motor three phase, 220 volt, whereas if he put the motor in as the only motor that he would ever have, a half hp. ought to be 110 volts, single phase.

"I think that you will see from this how easily 'motor misinformation' —such as referred to in the article—may arise.

"The motor manufacturer sends in word from a distance without giving the information necessary. If the motor manufacturer would tell to which customer, or rather on which installation, he wishes to place a particular motor, then the central station would tell him just what voltage, phase, etc., would be advisable, but that information would not apply to a great many

other installations in the territory of that central station and, as you will see from the description above, it is absolutely impossible to give any general rules that will tell the motor manufacturer what kind of motor to attach to a machine unless the conditions of the particular installation are known."

And now, before we go further, glance at this letter which was issued by a motor manufacturer to manufacturers of appliances equipped with his motors:

"In view of the many varieties of electric service with which central stations are supplying their various customers, it becomes a matter of the utmost importance for all manufacturers of electrically driven machinery or machines to assure themselves that they know exactly what kind of service will be furnished to intending customers in order that the proper motor for driving any machine or machine tool purchased may be selected. Difficulties and annoyances have been encountered and large expense involved, at times, through making changes in type or winding of motors first furnished, necessitated by lack of reliable information regarding the kind of current or voltage available or through erroneous information given by careless or irresponsible employees of electric lighting companies.

"It is suggested, therefore, that a blank similar to the attached, which may be printed on the back of a postal card, if necessary, be sent to the central station which is to supply current for any given installation and that no shipment of a motor-driven tool or machine be made until the blank has been returned with all enquiries answered. This procedure will insure that the responsibility for specifying the kind of electric service to be supplied is placed where it belongs."

To the Electrical Department of
(Electric or Electric-Gas Company).

Gentlemen:—

Kindly advise what current you will furnish for operating (½ HP.) Electric Motor, to be used on the premises of (William Smith), (45 Centre Street), in your town.

Answer here:—

(a) Direct Current.....volts.

(b) Alternating Current..... volts..... phase..... cycles.

Signed.....

Per.....

Please fill out the blanks above, signed by proper authority, and return to us by return mail.

Yours truly,

NOTE.—Cross out (a) or (b) as occasion requires.

Style of Information Card Recommended by Motor Manufacturer

There are three ways in which misinformation may creep into a deal involving a motor-driven machine:

(a) The proper information may not be asked for.

(b) The inquiry may not be answered by a person having adequate knowledge or authority.

(c) The person receiving the inquiry may, for private reasons, desire to block the sale or switch it to some other motor or appliance.

The responsibility in the first case rests with the appliance manufacturer: in the second, with the central station management. The third is simply a case of short-sightedness or graft.

While it seems incomprehensible, cases of this last sort seem to far outnumber the other two. The letter above quoted speaks of "a good many instances," and it is well known that certain appliance manufacturers substitute their own name plates on motors of well-known makes in order to avoid trouble with central station superintendents who would not allow these motors to go in under their own names. Such men are, of course, cutting their own throats. Sooner or later they will be found out.

The sales efforts of the motor-driven apparatus manufacturers can be made to count on the profit side of the ledger of any lighting company. These manufacturers are, as a rule, ready and anxious to put salesmen into promising fields and are glad to let their men work side by side with the lighting company representative.

Such co-operation should be met more than half-way.

The Lesson of Worcester

The recent agitations in Worcester, Mass., prove one thing—that a lighting company has duties to its public as well as to its stockholders. The stock of the Worcester company is quoted around $250 per share, which is about as far as it could go in view of the Massachusetts dividend restrictions. Satisfied with this very excellent condition the management has done nothing to promote its service or to serve its public.

The inevitable result is attempted competition.

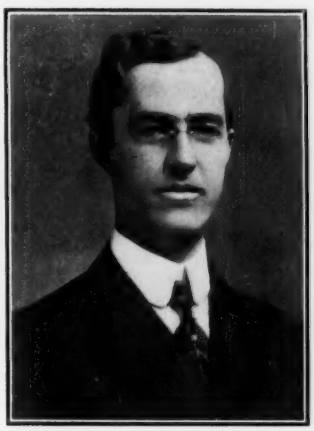
Electric Power in a Planing Mill

The Facts and Figures in an Installation in Plymouth, Pa.

By Thos. E. Spence, Power Engineer
Luzerne County Gas & Electric Co., Plymouth, Pa.

WITHIN the past two years there has been a generous substitution of electricity for steam among planing mills in this locality as a result of a careful investigation and analysis of operating costs and effect on production, made by the New Business Department of this company.

One of the largest local users of central station power is the West Planing Mill, Plymouth, Pa., which contracted with us for the supply of electric power in January, 1909. The contract was secured purely on its own merits. Mr. West, who owns the planing mill, was some time ago interested in a local light and power company and gained some knowledge of comparative costs, therefore, when we approached him on the subject of electric power, he had already given the question thought. He was skeptical as to results, however, but after estimates were made and the details thrashed out, we arranged to operate the mill on a temporary contract for a period of six months.



Thomas E. Spence

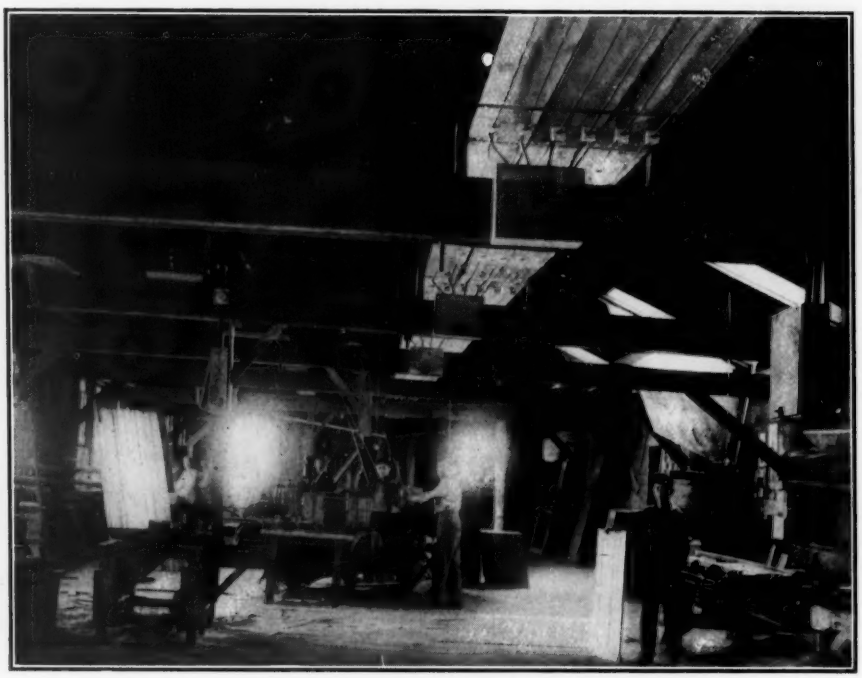
We made an installation of 200 hp. in motors operating wood working machinery for general mill work, cabinet and box making. The heavier machines and all those which are used intermittently are driven by individual motors as are also many of the lighter ones so located as to make it impractical to extend a line shafting to drive in group without undesirable transmission loss. The general scheme of the drive is as follows:

Individually Driven Machines	Hp. of Motor
Suction Fan	30
30 in. D. S. Planer	20
Dovetailing Mach.	20
Band Saw	15
10-in. Moulder	15
3 Drum Sander	10
Self Feed Rip Saw	7½
Single Surface Planer	5
20-in. Planer	3
Single Surface Planer	5
Combination Saw	5
Cutoff Saw	3
Cutoff Saw	3
Cutoff Saw	3
Combination Saw	2
Rip Saw	2
Scroll Saw	2
Jig Saw	1
Sizing Saw	2
20-in. Jointer	3
Sash Dovetailing Machine	2
Mortising Machine	2
Panel Raiser	2
Arm Sander	2
6-in. Sticker	7½

Individually Driven Machines	Hp. of Motor
Lathe	3
Lathe	3
Nailing Machine	2
Box Press	2
Printing Machine	2
Spindle Shaper	2
Dadoing Machine	7½
16-in. Jointer	1
Emery Wheel	¼
Auto Grinder	2
Group Driven Machines	
1. Sash Sticker, Tenanter, Rabbit and Beader	5
2. Box Binder and Holding Machine	2
3. Blind Borer and Tenanter	1

previously employed, the coal consumption showed up very low. The boiler fires were kept up during many hours of the day entirely by means of the shavings which were drawn from the floors by suction fans feeding direct to the fires. Being of very little value to the mill owner otherwise, these shavings became a cheap fuel.

As no extensive account had been kept of the previous operating cost a few of the minor items had to be estimated. The total expense, however, for the six months from January to June 1908, covering coal, labor, water rent, ash removal, oil, waste, repairs and investment charges amounted to $1131.61, while during the corresponding period of 1909 the cost of operating the mill



A Corner of the Upper Floor, West Planing Mill, Plymouth, Pa.

All machines are belted and the speed of all motors is 1700 rpm. with the exception of the 2 hp. motors driving the nailing machine and the printing machine which run at 1120 rpm.

On investigating the cost of operating this mill by steam, the power

electrically was $1032.00, the following items being considered:—electric current, heating building, oil and investment charges.

The owner is now more than satisfied that he has profited by the change and is operating on a permanent contract.

The economical features of electric power in the planing mill, however, cannot be considered by a comparison of figures only as the greater steadiness of drive and a consequently higher average speed permits of an increased output which makes an electrical equipment a very attractive investment to the mill owner.

Without a further addition of machines the management of the West Planing Mill has reported to us an increased output of 15% since utilizing electric power.

A Dollar Idea

By John G. Learned, Contract Agent
North Shore Electric Company, Chicago, Ill.

WHENEVER we secure a new power customer, whether it is a new plant or whether we have displaced some other drive, we write up a little article for the local papers. We explain how Mr. So-and-So, a conservative business man, has adopted our service and describe his plant and business, giving emphasis to the fact that electric power was chosen as representing the highest type of mechanical energy.

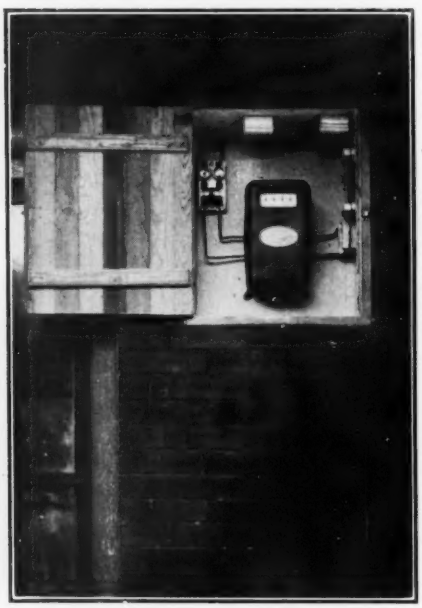
The article is so written that it is news and acceptable to the press, and the customer is in all cases most pleased. It advertises him as a progressive business man and it advertises electric power in an impersonal way that carries weight.

The Location of Meters

By F. N. Noecker, Manager
Renovo Electric Light, Heat & Power Co., Renovo, Pa.

DURING the past five years the Renovo Electric Light Co. has endeavored to place meters on the first floor of all buildings and as far as possible on the outside. Only about one-third of them still remain in attics, bath rooms, or other undesirable places.

As a suitable place for residences,



An Outside Meter Cabinet in Renovo, Pa.

we have chosen the side porch or rear porch. In new buildings, we are persuading the builders to build the cabinet into the wall opening towards the outside. In old buildings where this is not possible we fasten the cabinet against the outside of the building on the rear or side porch.

Attics and cellars may be convenient locations for meters, with reference to the service connection, but both places are undesirable, for the customer as well as the man who reads the meter. It is necessary in either case to gain admission to the building and while waiting at the door for this privilege the meter man could read the meter, if outside, and be on his way to the next customer. Very often in residences there is no one at home and the meter man has to make two or three calls before he gets the reading. It is very evident, therefore, that if meters were grouped in large buildings and accessible from the outside or in the hallway on the first floor, one meter man could do the work of three or four and annoyance to customers would also be reduced to a minimum.

The accompanying illustrations show types of meter cabinets installed in this city. The manner and location in which they are placed of course depends to a greater or less extent on the character of the house and the relative position of the nearest pole line, but we have demonstrated to our entire satisfaction that there is economy in running the service around a building, if necessary, to obtain an accessible location for the meter. Also such extra expense seldom amounts to enough to figure materially in the cost of the connection.

On the other hand, experience has shown that with meters so placed a meter reader can cover as high as

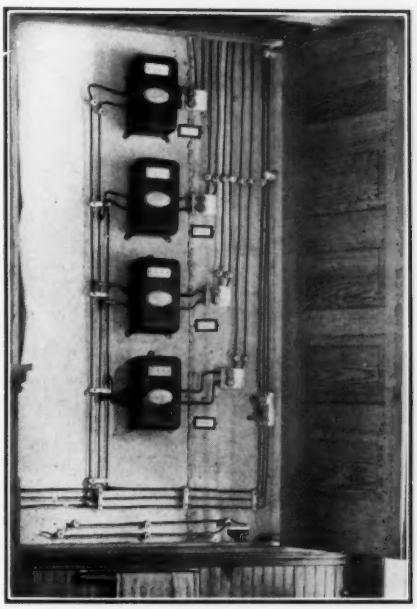
300 meters a day as against a possible 80 where it is necessary to gain admittance to the premises. He can also start out at 7 o'clock in the morning, if desirable, which is, of course, impossible with inside meters. If it is the duty of the meter man to take monthly account of complaints, he can still continue in this capacity by presenting his card at the door or by simply stating his mission.

I feel that this matter is an important one, and that some action should be taken by central stations to the end that a more uniform method of installing meters can be adopted. There is no reason why architects should not furnish plans in every building for a proper cabinet for meters and cut-outs, and they should be so located that they are easily accessible, and well enough lighted so that the dials can be read with ease. As it is now the light and switch outlets are usually located, and the starting point or meter and cut-out cabinet is not indicated. If it is not omitted it is either too small or the location is such that it is either impossible or impractical to use it.

The installation of a meter cabinet is a very small item in the building of a house and no opposition will be encountered from either architect or builder if a uniform type of cabinet and "best location" be adopted by central stations operating in adjacent territories, so that there may be a full understanding as to just what is wanted and why.

There is no increase in the cost of wiring. It simply changes the relative position of the starting point and our customers are highly pleased with this arrangement. In new buildings the majority insist on having the meters open to the outside and in old buildings where meters are still on the inside we have frequent requests to change them so that the meter reader need not enter the house.

The meter cabinets shown in the



First Floor Meter Arrangements for Three Flats and Store, Renovo, Pa.

illustrations, as is evident, are of the cheapest class of construction, but the architect can vary in the design to conform to any style of building and the presence of the meter need not blemish the finest building, if the arrangement is cleverly handled.

The logical position for all meters is on a porch, flush in the wall of the building and facing out, and in this position the instruments are sufficiently protected against changes in

temperature. A glass in the door is also a great convenience to the meter man, not only in reading but also in testing on stormy days with the meter case removed.

With meters thus located in cabinet boxes the tendency to steal current is also lessened for the theft is more easily detected; moreover stealing is usually done under cover, seldom in the open. The cabinets could be provided with locks, if deemed necessary, but we have had no trouble from theft of current or from any other source and therefore find locks unnecessary.

The best time to have the outside cabinet installed is when the building is erected and to that end the matter should be brought before the architect and builder. The central station can save a vast amount of trouble and a very considerable expense in this manner, and the consumer will be saved much annoyance.

A Dollar Idea

Clerk, Business Department
The Dayton Lighting Company, Dayton, Ohio

IN the display room of The Dayton Lighting Company every known electrical device is on exhibition. It has been customary to have each appliance properly labeled, plainly setting forth its advantages and the purpose for which it was designed. Circumstances have arisen, however, which have caused us to remove the placards and allow the consumer to call them anything he desires so long as he makes a purchase.

At Christmas time we laid in a large stock of electric shaving mugs, but did not succeed in making as many sales as we anticipated; as a result we were left with a quantity on hand. Instead of packing them away and allowing them to remain on our hands until a more efficient appliance was placed on the market, we immediately changed their name. After Christmas they were known as "Dentist's Instrument Sterilizers", and with a little special advertising to this profession we have practically exhausted the stock.

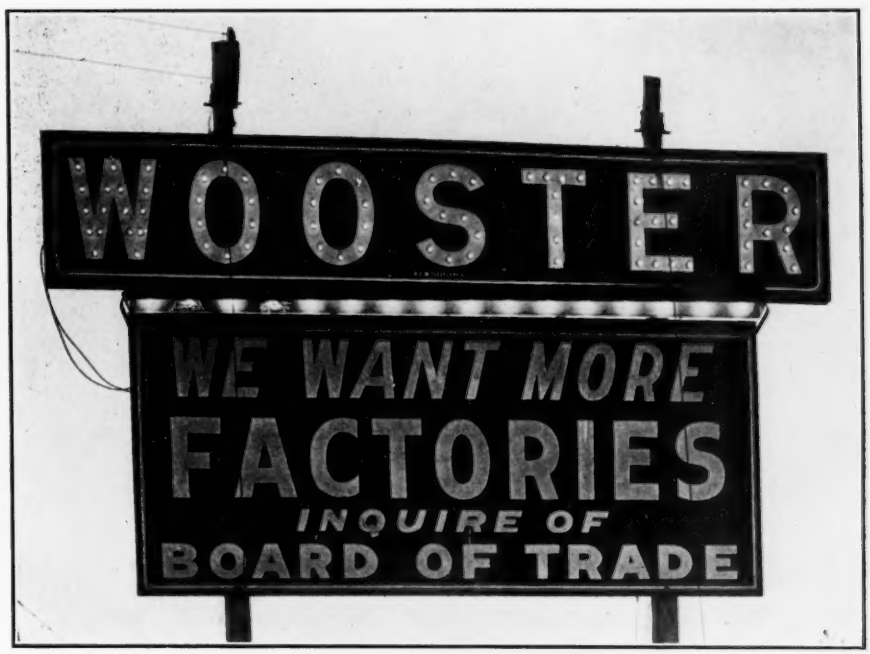
Putting Wooster, Ohio, in the Public Eye

By C. V. Hard, Treasurer
Wooster Electric Co., Wooster, Ohio

WHEN the Board of Trade of Wooster appointed a Committee consisting of Mr. A. T. Dix, Secretary of the Board, and two others to look into the question of erecting a sign near the depot of the Pennsylvania Railroad, I made a proposition to the effect that if the Board would erect a creditable sign the Wooster Electric Company would furnish the current to light it.

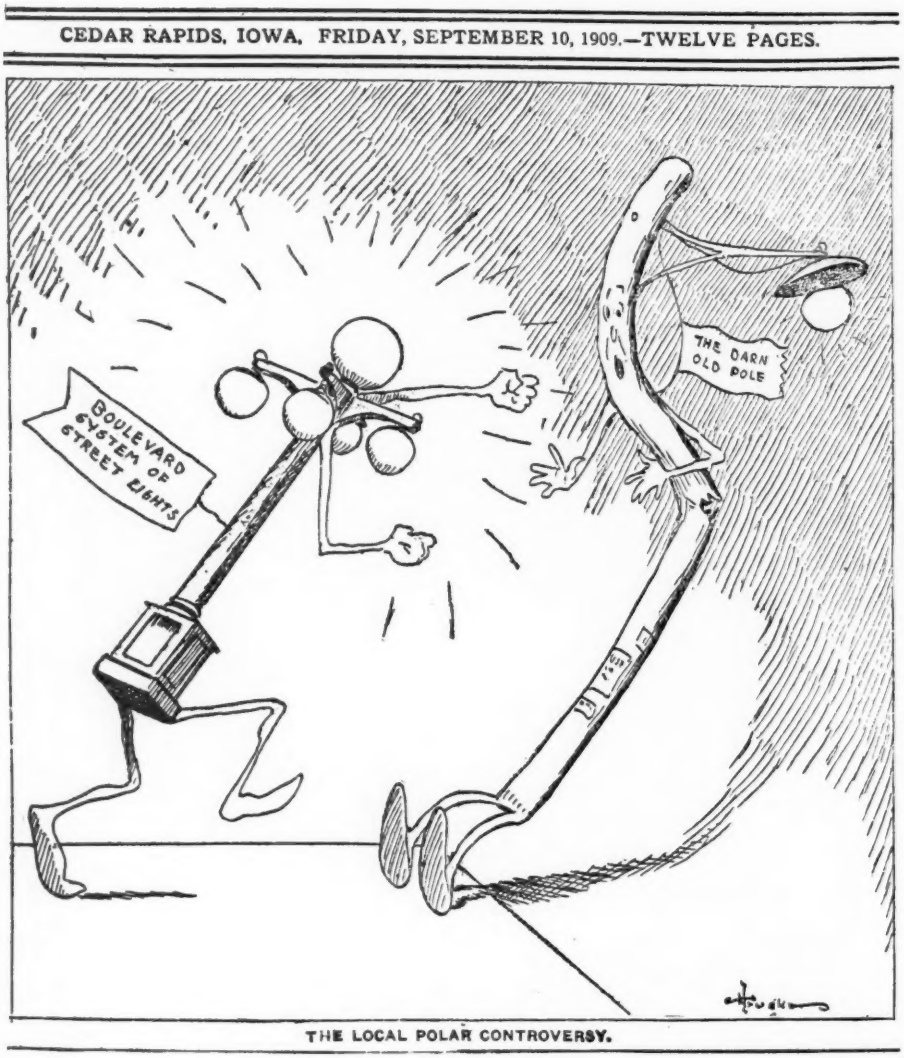
The offer was accepted, and a sign 22 feet by 14 feet was erected on an elevation near the passenger depot of the Pennsylvania Railroad, where it is seen by every traveler who goes through Wooster on that road.

It has already attracted a great deal of attention and has resulted in the Board of Trade receiving a flood of inquiries from parties seeking locations for new enterprises. A number of these have been already secured and others are still negotiating with the Board of Trade. The Board and public-spirited citizens look upon this sign as the best stroke of advertising they have ever tried. It has done more to get Wooster "on the map" than any other one thing that has been done, though the sign has only been "going" about two months.



The Board of Trade Sign, Wooster, Ohio

Another Cartoon



THE LOCAL POLAR CONTROVERSY.

Here is another illustration of how the local newspaper cartoonist may be induced to promote the central station interests. (See Oklahoma City cartoon, SELLING ELECTRICITY, September issue, Page 94.)

There is no advertising like obviously disinterested advertising, and the theme of the popular cartoonist encounters no prejudice. You have but to point out the way, for he is ever on the lookout for ideas, and it is the fault of the central station if he has to fall back on the weather.

Advertising in Montpelier, Vermont

The Consolidated Lighting Company Sends Out a Series of Folders of Exceptional Merit

UP in the granite hills of Vermont are two small adjacent cities, Montpelier and Barre, with 8,000 and 13,000 population respectively. The Consolidated Lighting Company with headquarters in Montpelier covers both cities, as well as several smaller towns and much quarry country.

Both the cities and the villages are inclined toward conservatism and slow progress in the adoption of electricity in its many new applications. The mainstay of the station is the granite shed power load, and the Consolidated Lighting Company enjoys the unique benefits of an all day peak. Therefore there is ample margin for taking on additional after dark business, and Mr. James E. Davidson, president and general manager of the company, has been directing his efforts toward that end.

A series of folders has recently been sent out to all the merchants and business men in the territory, advertising the virtues of electricity both for store lighting and for electric sign advertising. The folders were attractively printed on tinted paper in two colors of ink, each one being different in appearance, but of uniform size and style. Each folder as it came through the mails bore on the reverse a street scene as photographed in some well illuminated city, and above it the query—"Why Cannot Our Streets Look Like This?" Inside, each folder presented a little "good service" talk and a cut of some local installation with a description and sales argument. It is impossible to reproduce these folders here in exact size and shape, but the text as it follows is well worth attention.

FOLDER I.

Did you ever stop to think what it means to keep the wheels going around—not every day—not every hour—but every **second,** year after year?

The lights must burn, the motors must turn day or night.

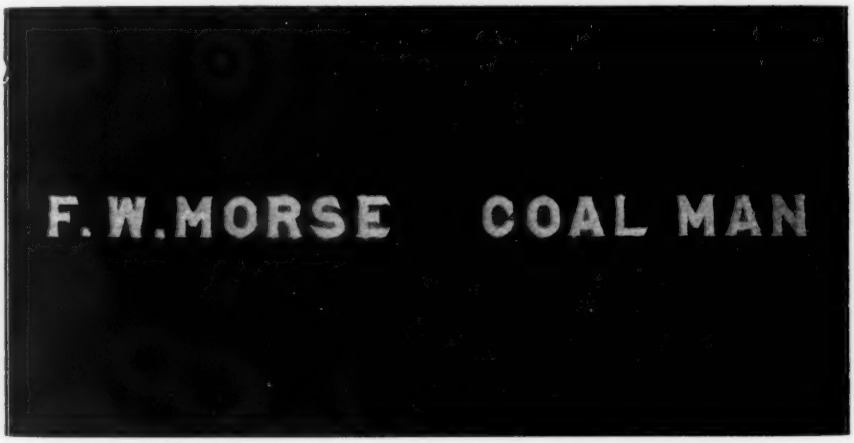
When you get up at 4 A. M. to catch an early train, you press the button and the light must be there on the instant. Electricity must be manufactured as you use it. It cannot be stored in a tank. The dynamos must be ever at work, waiting for you to turn the switch.

We are giving **YOU** such a service.

An illustration: During the recent period of low water, when others might have closed down for a few hours during the night or day, to husband power, we purchased coal and ran our auxiliary turbine generator at an overload of 75% and our engines at 50% overload rather than inconvenience our patrons. This we did to the great detriment of our machinery, and at considerable risk and extra expense.

Time and tide and the power house can never rest. Electricity means much to the city's comfort.

We are doing our part in the production of the city's prosperity.



Here is an example of Electric Advertising.

We usually think of an electric sign of this size as marking the location of some store where there is a large window display of jewelry, shoes, groceries or dry goods. But Mr. Morse sells coal, and coal to the man on the street is just coal,—small pieces for the range, big ones for the furnace.

People do not buy coal because it looks attractive in a window, they buy it when the coal bin floor begins to show. And they say, "Let me see, who do we buy coal from? Why, Morse, the Coal Man!"

They think of Morse, the Coal Man, because he has burned his name into the public mind with letters of fire. True—his coal burns free, and the price is right. But the first time the coal was bought, they ordered from the man whose name was coupled in their minds with the word coal.

They had read the sign, day after day, night after night: **"F. W. MORSE—COAL MAN."**

CONSOLIDATED LIGHTING COMPANY.

FOLDER II.

Did it ever occur to you that of all the various agencies that minister to our bodily comfort, electric light is the most thoroughly reliable and least troublesome?

What we buy from the grocer we must order individually each time and see that it is delivered. Sometimes on a winter morning, we find the milk frozen solid in the bottle and it has to be thawed out. Again, the house is closed some afternoon and the butcher leaves the roast on the back porch, where a neighbor's dog or our own devours it.

The coal in the cellar, for instance, must be watched and replenished every so often. The ice melts before we know it and the fruit spoils.

But the electric light is always waiting and ready when we turn the switch.

Day and night, month after month, year after year the wheels must turn, the machinery must be watched and groomed, the current must flow.

How much more desirable as a place in which to live and work, is a city with such a service!

We are giving our customers such a service, that we may share in the prosperity of the city.

If good electric service is important in the home, how much more essential it is in the store. For though we cannot rate our home comfort too highly, a merchant's prosperity—his very business existence depends largely on the appearance of his store—whether it is inviting or repelling.

A large part of the day's sales are made in the evening, and the proper illumination and display of the merchandise depends on light—electric light.

These two photographs were taken in the McCuen & Company dry goods store **after dark.** Look at the bolts of goods on the shelves and counter—see how the patterns stand out—even the band of selvedge on the dark woolens. That means light, well controlled efficient light, diffused and with proper color values.

We went to McCuen & Company when the tungsten lamp was first placed on the market and explained its money saving properties and the value of tungsten light for properly displaying colors. They installed tungsten lamps with scientific reflectors—you see the result.

This is the service we give our customers—and the lights always burn.

CONSOLIDATED LIGHTING COMPANY.

FOLDER III.

There are some people, who question our sincerity when we urge the merchants to burn electric signs and light up their shop windows and help boom the city. They say that we are thinking only of increased sales.

The fact is, however, that ten, twenty, thirty signs would effect our

profits but little. If every merchant in the city burned a sign over his door, it would not mean as much increased business to us as the coming of one new granite shed.

But it would mean that we would have a brighter, busier, more prosperous city; that the streets would be fuller of life and activity; that more trade would be drawn from the outlying country; that more people would locate here, and that we would all profit by this added wealth.

We urge every merchant and business man to take the fullest advantage of the power of **ELECTRIC ADVERTISING.**

We all want brighter stores, brighter windows, brighter streets; in short, a brighter, cheerier city—and more people and more prosperity.

This is probably the best known sign in Montpelier, the sign most familiar to the people of Barre and surrounding towns.

It stands on the corner of Main and State Streets and it talks to every man, woman and child as far down as the Pavilion Hotel, and it makes business.

It shines in the eyes of a man and he says "By Jove, I pretty near forgot those pictures hooks again! I'll slip up to the next corner and buy them." The woman sees it and she says "I'm glad I noticed that sign for I can't seem to remember that egg-beater"—and she walks down the street and buys it.

An electric sign on a store makes its appeal at a time when it is easiest to buy.

When you read a printed "ad" you are apt to be at home or in a street car or at the office, but when you read a man's sign his store is before you and no effort is entailed in following up the suggestion.

The Capital Hardware Co. realizes these things and takes advantage of the power of Electric Advertising.

CONSOLIDATED LIGHTING COMPANY.

FOLDER IV.

It is said that a corporation has no soul and no thought but for its own profit.

We cannot agree to such a policy. Our good fortune depends on the prosperity and the enthusiastic support of our patrons.

As an evidence of our good faith:

There are other electric light companies who have made every effort to prevent their customers from using the new high efficiency lamps and thereby reducing the amount of current consumed by about one-half.

We have introduced these lamps on a meter basis, and we have secured the services of expert illuminating engineers, who have talked to our merchants and advised them as to the proper use of tungsten lamps.

We have voluntarily helped them to reduce their lighting bills or to secure more light for the same money.

Above all things we want satisfied customers; and this is an instance where we are willing to actually sacrifice business—money—to raise the standard of illumination.

This photograph of the interior of Wells & Boyles' carpet and wall paper store was taken at night.

It does not seem possible, does it?

Every detail of pattern and figure stands out as distinctly as though you were examining the rug, the carpet or the wall paper in the sunlight.

Messrs. Wells & Boyles are firm believers in the value of efficient illumination and their store is lighted with four 250 watt tungsten lamps with diffusing reflectors.

Here is an example of what proper illumination means in a store.

Everyone who knows the Wells & Boyles store has been impressed with its bright cheery atmosphere and the attractive and appealing display.

And the secret of it all is—illumination.

CONSOLIDATED LIGHTING COMPANY.

FOLDER V.

The last ten years have seen a wonderful development in the popular use of electricity. This has come as a result of improved lamps and power apparatus, and a gradual fall in the price of current to the consumer.

We are confident that electric light will become constantly cheaper. This will be made possible by an ever growing demand for current, through the greater use of light, heating appliances and power.

The more current we can generate, the cheaper we can sell it to the consumer.

Our policy is to build up the demand for electricity to the end that we may make it cheaper and more universally used for lights, power and home conveniences.

We look to Electric Advertising for much of this increase because electric signs and display lighting are growing in "pulling power" and popularity. There is no class of advertising more effective and our merchants will follow the lead of the larger cities.

Do **YOU** not appreciate that **our interests** and **yours** are identical?

The F. A. Standish Cigar Store on State street, Montpelier, has a never-sleeping-salesman that sells cigars day and night. We have all seen it—the fire is red and the ash is white—just as it should be—and the word **CIGARS** flashes into the eyes of every smoker who walks the street.

What is the result?

Nine out of every ten of them, who do not happen to have a cigarette, pipe or cigar in their clothes drop in and buy.

It **suggests** the pleasure of smoking—it is enough.

There is no retail business, whatever its nature may be, that cannot profit by electric advertising. If the sign does not actually create the desire, as the Standish sign does, it establishes the identity, position and character of the store in the mind of the public.

No matter what you sell, Mr. Merchant, you can sell more if you advertise your business with electric light.

CONSOLIDATED LIGHTING COMPANY.

It must be remembered that both Montpelier and Barre are centers of a large section of agricultural and quarry country. The people are well-to-do and there is plenty of money available, but it is not in brisk, healthy circulation.

Mr. Davidson is working to arouse the business interests to the necessity for more progressive methods and a faster pace. The effort throughout the campaign was to impress upon the public the fact that good electric service is a boon to any community, and to demonstrate to how great a degree the Consolidated Lighting Company contributes to the comfort of the people. At the same time, by singling out specific electric signs and store lighting installations familiar to all, the application was brought home more forcibly, and the merchants thus advertised were enlisted in the cause. The introduction of street scenes from other cities, showing good sign and window illumination added a forceful argument.

Mr. Davidson expresses great satisfaction with the results obtained through this publicity, and believes they have induced a very considerable favorable sentiment.

Why Cannot Our Streets Look Like This?

Street Scene in South Bend, Iniana

The Back of Folder V. Each One Bore a Similar Cut and Query.

The Comparison of Tungsten and Gasoline Lighting

IN comparing the relative merits and demerits of gasoline and tungsten lighting, cost, quality of illumination and hazard are the most important features to be considered, and besides these three, there are a number of minor considerations, all of which should influence any intelligent consumer in his choice between the two illuminants.

No cost data, which can be given, would be of universal application, because the prices of gasoline and electric power (the latter especially) vary widely. In figuring the monthly cost of the two systems for a certain definite assumed case, however, it will readily be seen how such computations might be altered to fit other rates for power and fuel. The case considered is a large room of ordinary finish and height, equipped with:

1. Bowl-frosted tungsten units, rated with 100-watts and 80 horizontal candle power, and bowl reflectors.

2. Gasoline lamps with chimney and mantle, burning, at a gravity pressure of about 12″ of water (0.43 lb. per square inch) 2.2 gal. of oil per mantle per 100 hours.

Dimension of room,	40′ x 40
Area to be lighted,	1600 sq. ft.
Sq. ft. allowed per rated cp.,	3
Rated cp. required,	533
No. of 80 cp. (100 w.) units required,	7

	Tungsten	Gasoline
Hrs. burning per month,	120	120
Horizontal cp. of unit,	80	30
No. of units,	7	25
Assumed cost of supply,	10c kwh.	16c gal.
Cost of supply per month,	$8.40	$10.69
Monthly cost lamp renewals (800 hour basis),		$1.95
No. cost chimneys and mantles (renewed once in 270 hours),		$1.40
Total monthly expense for illumination,	$10.35	$12.09

A gasoline lamp, as above described, will average not over 30 horizontal candle power per month of 120 hours, consuming 2.7 gallons per mantle per month. The light distribution is mainly horizontal, owing to the absence of an efficient reflecting device. Mantle lamps, especially the upright type, are not well adapted to efficient reflectors, owing to:

Variation in the exact location of mantle, making it difficult to keep a fixed relative position of the source of light and reflector;

Deterioration and darkening of mantles and chimneys;

The presence, in some types, of metal parts directly under the lamp, cutting off light;

The small demand for experimentation and development by reflector manufacturers along these lines.

It is safe estimate that not more than 75% as much useful light per rated candle power is given by the upright mantle gasoline lamp, as is given by the tungsten, "Useful light" meaning light upon the working plane, which is commonly taken at 30 inches above the floor.

Hence, 3.6 times as many gasoline lamps are needed to give the same useful illumination as that obtained with tungsten lamps. The figures in-

dicate for his particular case a monthly saving of about 14% by the use of tungsten lamps.

Tungsten lamps are adapted to, and are regularly provided with efficient scientifically-designed reflectors, whereas gasoline lamps are not. The efficiency of the tungsten filament (1.25 watts per candle) is enormous compared to that of other commercial filaments. Add to this the advantages to be gained from proper reflectors, and it will be seen that the tungsten lamp uses the energy supplied to it far more efficiently, wastes less in heat and useless light, than does any commercial fuel-light in existence.

These lamps are supplied in 25-40-60-100-150-250-watt sizes, making it an easy matter to install them in large or small units as the case requires. In this respect they are more flexible than gasoline lamps. Tungsten light is white light. Mantle lamps have a more or less pronounced greenish hue, by which it is impossible to judge shades of color. Compactness, simplicity, steadiness of light and warmth of color, all tend to give a room illuminated by tungsten lamps a more cheerful effect than one lighted by gasoline.

No portable or table lamps are permitted with gasoline. Such lamps can always be used on an electric circuit, although tungsten filament lamps should preferably not be used for portables. The filament in tungsten lamps is fragile, and servants usually do not appreciate this fact when handling table lamps.

The process of filling, in installations where the gasoline is contained in the lamp itself, is attended with danger and loss of time. Fifteen minutes per day = 91¼ hours per year. Considable inconvenience is occasioned in lighting gasoline lamps. Tungsten lamps light instantly when the switch is closed.

Tungsten lamps, due to their efficiency, give little heat per candle power, rendering them especially useful in southern localities. They have no odor, nor do they tend to get into poor, inefficient condition, as do gasoline burners and gasoline plants. The expense of overhauling the latter at frequent intervals is an appreciable item.

The depreciation of tungsten lamps with age is nothing when compared with mantle burners. A tungsten lamp will, in the majority of cases, remain at above 90% of initial candle power throughout its entire life.

Variations in quality of gasoline fuel cause large variations in candlepower and may cause flickering. With ordinary voltage regulation, this effect is not observable with tungsten lamps.

Hazards may be divided into two classes; those common to all gaseous illuminants and those peculiarly likely to occur with gasoline. In the first class may be included accidental causes, such as started the following fires:

Curtain string blew into the flame.

Sweeper moved a bed containing draperies against a lighted lamp.

Man lighting gas ignited curtains.

These causes, common to both gas and gasoline systems, require no further comment.

Explosions, for reasons to be outlined presently, are peculiarly apt to occur with gasoline, The immediate cause may be any one of a thousand unexpected events. One case is on record where a small boy lighted

a match and threw it at a man working over a tank containing volatile oil, with results to be anticipated. Static electricity, the driving of a nail, or anything, which produces a spark, is sufficient to fire an explosive mixture.

Gasoline is one of the most volatile of the ordinary products of crude petroleum, from which it is obtained by "fractional distillation." It contains all the elements of petroleum, which vaporizes at a temperature below 72 degrees Centigrade. When gasoline is mixed with air, it forms an explosive combination, and under ordinary atmospheric conditions it is constantly giving off its lighter vapors, The relative quantity of gasoline vapor and air present, determine whether the mixture is explosive or merely inflammable. The vapor from one pint of gasoline mixed with air will make 200 cu. ft. of explosive.

The following table shows the volatility of gasoline as compared with common liquids. It should be understood that the properties of gasoline depend somewhat on its specific gravity, which varies with different grades.

	Vapor Pressure at 68° F.	Loss per Hr. in c.c. at 68° F. from a beaker 77 mm. diam.
Kerosene,	0.3	0.13
Turpentine,	0.4	0.17
Distilled Water,	1.74	0.29
95% Commercial Alcohol,	4.5	0.88
Completely denatured Alcohol,	5.5	0.98
Gasoline 66°,	6.6	1.32
Wood Alcohol,	8.8	1.56

It sounds at first somewhat like a paradox to speak of rigidly classifying liquids according to the risk of danger connected with their use. With records of thousands of past fires, however, and a knowledge of the chemical and other properties of dangerous liquids, upon which to base calculations, this can be done, and has been been done by Mr. A. H. Nuckolls, Chemical Engineer, Underwriters' Laboratories. Mr. Nuckolls' method is as follows:

He starts by tabulating the 12 principal characteristics which are possessed in a greater or less degree by all hazardous oils:

Range of vapor-air explosive mixtures, ignition point, flash point, combustibility (burning point), vapor density, volatility, chemical activity or hazards in combinations, ability as a factor in spontaneous ignition, ability towards leakage, ability as a corrosive agent, resistance when burning to the extinguishing action of water, violence of vapor-air explosive.

Having made this list, and taken ether as a standard, or 100% of hazard, he prepares curves showing approximately how the various properties named affect the hazard, and that there is a sharp rise in hazard whenever these properties occur at or near average room conditions of temperature and pressure. The method is laborious, some 21 curves being exhibited, but the following extract from the final results should be of interest as showing the "high standing" of gasoline in a scientifically prepared rating of hazardous fluids:

Substance	Total Hazard
Ether,	100. %
Carbon Bisulphide,	105.5
Benzine ($C_6 H_6$),	90.7
Gasoline,	99.4
Benzine (Petroleum Product),	90.
Alcohol (wood),	73.7
Alcohol (denatured),	73.2
Alcohol (grain),	65.
Kerosene,	36.5
Turpentine,	36.7
Linseed Oil,	32.5
Paraffine oil,	7.3

More chances are commonly taken with gasoline than with gunpowder, and it is recognized that the precautions advised are violated in countless cases; but from the standpoint of properly safeguarding a building against fires they ought to be observed.

Gasoline should be stored in good heavy underground tanks placed as far as practicable from the building. Mr. Alfred G. Patton, in an article in the National Fire Protection Association Bulletin, Oct. 1, 1907, recommends the following practice for storage:

"Tanks should be of ⅜" boiler iron tested to 100 lbs. per sq. in., and coated on the outside with tar; all the connections for filling and pumping to be made in top of tank; tanks to be encased in a concrete covering on all sides and over top at least 12" thick, to prevent, as far as possible, leakage and consequent filtering of the oil through the ground into cellars. Where it is necessary to place tank underground in close proximity to a building under which there is a cellar, top of tank should be sunk below the level of such cellar to eliminate the danger of drainage from a possible leak. Storage tanks for volatile oil should be filled from outside the building."

Especially in factories equipped with gasoline systems, it is advisable to have all gasoline drain from the building, and shut off all gasoline cocks at entrance to buildings at night. Tanks should be so set that the top of the tank is below the bottom of generators and also below the grade of the plant supplied. It should be noted, however, that the higher the pressure of feeding at any particular lamp, the more dangerous that lamp becomes.

A typical gasoline fire occurred the latter part of 1907; it is listed by the National Fire Protection Association as hazard No. H-1716. It took place in a tin-can factory where gasoline was used for lighting and for manufacturing purposes. The storage tank was above the grade of the gas manufacturing building, and this latter was in turn above the grade of the factory. The drain from the gas-machine floor empties into an underground brick trench which runs on a down grade to the side of the shop and thence into a sewer-pipe, which latter runs into a long open-topped vault. It is believed that gasoline ran into this trench, due to a leak at the machine, following down to the vault where it vaporized and exploded. After the main plant burned, the gas-machine house burned, and with it a part of the contents of the generators which held approximately 4,000 gallons of gasoline and and kerosene. The generator finally burst and the property was a total loss.

Mr. Victor L. Scott, of the San Antonio Gas & Electric Co., has prepared a legal digest on gasoline lighting permits which has been published in the American Gas Institute proceedings. Court decisions are cited to show that:

1. Any of the numerous restrictions contained in gasoline lighting insurance permits, when violated by the insured, voids the policy.

2. The violation of any of these restrictions by the occupant of a building not only voids his policies on stock, but also voids the policies of the owner of the building regardless

of the fact that the owners' policies have attached thereto gasoline lighting permits.

3. On a strict interpretation of the law it is almost impossible to handle this deadly explosive in such a manner as not to violate restrictions contained in any gasoline lighting permit.

4. Mr. Scott cites numerous cases which bear out these conclusions.

Therefore, even granting that the expense of electric lights may be 10 per cent. greater than the gasoline as a lighting proposition, the fact that the so-called gasoline lighting permits practically cancel the insurance policies of the occupant of the building, as well as the policies of the owners of said buildings, is sufficient argument when fully established to put all gasoline lighting plants on the trash pile. There are numerous cases on record where the insurance company has been relieved of liability on just such grounds.

A Dollar Idea

By J. E. Davidson, Gen. Mgr.
Consolidated Lighting Company, Montpelier, Vt.

WE have in our show window two small booths which are four feet square with a black roof, black sides and back, and a white floor. Hanging in one booth is an ordinary 16 cp. carbon filament lamp, and in the other booth a 60 watt Tungsten lamp. A card is hanging on the back wall just below and back of each lamp. The one back of the 60 watt Tungsten lamp reads,—"New Tungsten Lamp—Candlepower—48—10 hours' use 6c.—Life 800 to 2000 hours—Keeps candlepower through life—Quality of light—white." Behind the 16 cp. lamp the card reads as follows,—"16 Candlepower Lamp—10 hours' use 5-6 10c.—Life 500 hours—Quality of light—orange." A third card hanging in the front and leaning against the partition reads,—"Tungsten Lamps will do this: Reduce your bill one-third or give three times the candlepower for the same money." We find this has caused a great deal of talk and interest and is a good advertisement. One of the local supply companies have a novel demonstration in their window consisting of two ordinary 5-amp. meters. Connected to one are three 16 cp. lamps and on the other one 60 watt Tungsten lamp. Over the meters is a sign reading,—"The speed of the meter means dollars and cents to the user of electric light." Over the three 16 cp. lamps a card reads,—"Three 16 cp. lamps—48 Candlepower—180 Watts—Note speed of meter." The supply house reports the sale of a large number of lamps due solely to this advertisement.

Getting and Keeping Business

By W. R. Ostrom, Assistant Secretary
The Trenton Electric & Water Company, Ltd., Belleville, Canada

THE conditions of electric light, heat and power companies in the larger cities in Canada may not be different from those obtaining in the United States, our opinion being that a great percentage of their business comes without solicitation. Belleville, Ontario, however, differs from the larger Canadian cities and is peculiarly interesting from the central station standpoint. We have several important factors to contend with, any one of which keeps us alive all the time; and taken altogether they are a constant spur to keep the Trenton Electric and Water Company to the fore.

W. R. Ostrom

Our power is generated from the Trent River which is also being developed hydro-electrically by the government in connection with the Trent Valley Canal. We light the city of Trenton, 4000 inhabitants, where we also own the water works and near which our plant is situated. We transmit to Belleville, a city of 10,000 inhabitants, 12 miles distant. The municipality of Belleville owns the gas plant, whose heavily watered stock was unloaded on them. This in itself is keen opposition, for the corporation is continually flirting with other hydro-electric power companies to induce them to enter the field in competition with us. Our rates are low, being fairly compatible with our investment, varying from 5 to 9c. per kwh. for illumination, 1 to 3c. per hph. for power, and 2 to 5c. per kwh. for domestic heating installations other than irons.

Owing to a recent act passed by the Ontario legislature, a municipality cannot enter into a contract with a company or individual for any public utility such as light, heat and power for a longer period than one year without the consent of the electors. Our own contract for lighting the streets of Belleville expired July 1st, '09, and the Qualified Electors will be called on sometime between then and the next municipal election to pass a tentative contract just closed with the city. Our struggle to get this contract has been appalling.

Figure as they would the gas committee could not meet our figures for lighting the streets and we have reason to believe the city made overtures to every company within a radius of 20 miles to build another transmission line. This is not because our rates were excessively high, being $10.00 per 40 cp. series tungsten and $50.00

for each 2000 cp. arc, or because the city was particularly hostile; that is simply their idea of business. We had to furnish statistics of all the shutdowns of companies transmitting from water generation without a steam auxiliary, and only the fact that we have a local steam auxiliary capable of taking care of our entire load saved the day. We have asked for a five-year contract, subject to six months notice for cancellation after three years, and only then if the city decides to light its own streets. This condition of not giving the contract to a competitive system in three years was a great bone of contention, but ultimately passed. We are dealing with good sound business men who want to make their gas plant pay and yet at the same time if the people prefer electric light, to get it for them at the cheapest possible rate.

The gas plant is managed by a practical man who is always on the job. No sooner is the first step made in any new building operations than we are both after the lighting contract. No wiring is done by the company, but we voluntarily draw plans and specifications for the wiring of any building and pronounce on the fairness of the prices asked by the local contractors. We rigidly inspect all wiring installations under the Underwriters Code, issuing their certificate and sell at actual cost any device that the gas company can compete in. If we get the lighting contract the manager of the gas department makes a dead set for the cooking and heating proposition. Of course the day has not yet arrived when we can install domestic electric cooking appliances at the cost of gas appliances; but if the number of pieces justify it, we cut the rate to 2c. per kwh., installing a separate meter and selling the articles below cost. In this way we have installed three complete cooking outfits including ovens, disc heaters, coils for bathroom and laundry, grids and toasters, and have several others under way.

We conduct a sales room in both Trenton and Belleville, employing a permanent demonstrator and solicitor. All this means money in expenses, equipment, line and plant, and we offset it by our auxiliary power, sign and intermittent load business. All power consumers supply their own transformers, from which we can nearly always take their own lighting load, and in several instances we have succeeded in inducing them to order transformers larger than their actual power requirements to take care of heating devices. For instance, two shirt companies in direct competition and starting business last month bought two transformers together and the surplus capacity will take care of their lights and irons.

We have induced all the riparian factories to install electric power auxiliary to their water power which is bad on the Moira River several months of the year. These motors are wound at our primary voltage to save transformers, and the consumer pays standby charges of from $2.50 to $10.00 per month and 1c. per hph. for any power actually used. Provision is made to shut these consumers off at peak load.

There is not a steam plant in the city that has not received a proposition from us, and on short notice we can tell any one of them their require-

ments for individual or group drive by motor power, approximate cost of current, and cost of installation. We keep statistics on the conditions of all steam plants, and the cost of repairs, and just as soon as a manufacturer begins to think of a new steam, gasolene or gas producer plant or part of a new plant, we have a motor man at his beck and call. For some time past, we have employed the system mentioned by Messrs. Lloyd & Brooks, in SELLING ELECTRICITY, the May issue, and have just completed carefully compiled data for the city along these lines, a proposition for operating the city water works electrically.

For three years we have struggled against flat rates, and now that the meters are in the ascendency along comes the tungsten lamp to turn the tide completely in our favor. If a consumer will have a flat rate we charge him per candle-power. It does not take many demonstrations or much argument to convince a prospect or to change a flat rate consumer to the meter basis when we compare the cost of a 60-watt tungsten at 8c. per kwh. with a flat rate of $2.50 to $4.00 per 16 cp. per annum, depending on whether it is a dwelling or a place of business.

The tungsten lamp has been a veritable Godsend in gas competition and in winning over consumers prejudiced in favor of gas. When after repeated efforts we fail to displace gas we write to several tungsten lamp and fixture manufacturers and Holophane reflector dealers explaining the local conditions and asking them to send circulars and literature galore to these consumers. In a few days we stroll into their place of business and ask permission to install a tungsten lamp. Soon the prospect yields a small contract, and any additions in the lighting equipment of that concern are electric and tungsten lamps.

Possibly our methods of dealing with the public are the same as other companies. Every employee is instructed above all things to be courteous. We teach every consumer how to read his meter. We instruct him in the use of the portable testing outfit. We invite him to see that the Government inspector tests the meters. If he is greatly interested, and it is surprising the number that are, we show him the mathematical precision of the test, explaining the calibrating formulae of the different types of meters, the wattage of different lamps and the efficiency of any and all equipment.

Decorative Lighting, Victoria Park, Belleville

The whole non-producing or clerical staff is capable of taking a practical hold of the business. Even the stenographer and meter reader can take the instrument readings on a motor load, compute the horse-power used, work out the power factor approximately by a comparison of the volt-

ampere readings with the service meter readings, test and install meters, and in fact could, if necessary, connect up a bank of transformers or take a short shift at the sub-station or the electric end of the steam auxiliary.

There is probably nowhere a more unique system of accounting than that which we employ. With one meter reader, a stenographer and the writer, our meters are read and about 1800 accounts rendered each month in the last four days. All the postings are completed and the books are balanced by the 1st or 2d of the following month and without practically any nightwork. The entire system is looseleaf, envelopes and bills being in one piece and all meters are entered throughout the entire book-keeping system in the order in which they are read and located in the city.

We are keen and enthusiastic for business. Our small staff reads SELLING ELECTRICITY and the *Electrical World,* for which the company subscribes, and every idea of practical value to the central station man, found in these magazines, is followed in some way to a definite and logical conclusion both in Belleville and Trenton if the conditions permit.

A Dollar Idea

By James E. Davidson, General Manager
Consolidated Lighting Company, Montpelier, Vt.

IN the Collecting Department of a central station the monthly meteorological summaries sent out by the United States Department of Agriculture Weather Bureau are very valuable in accounting for the increase of lighting bills due to cloudy months. Under the head of "Weather" is given the number of days clear, partly cloudy, and cloudy. It is a coincident that usually two-thirds of the days in a month are either partially cloudy or cloudy. On showing this official document to the customer a great many times it suffices.

This same report is especially good as a record in connection with water power properties inasmuch as it gives the precipitation at the local weather bureau station for the present month and the same months for the past twenty or thirty years.

"Dollar Ideas"

A Paper Read Before the Pennsylvania Electric Association at its Second Annual Convention, Eagles Mere, Penna., Sept. 8, 9 and 10, 1909

By Earl E. Whitehorne

SALESMANSHIP, selling goods—electric current or any other merchandise—depends fundamentally on the intelligent application of good sound horse-sense, backed by accumulated and carefully preserved experience. There are no text books on "How to Sell Volts and Amperes," and there are no handy manuals arranged for ready reference so that when the solicitor finds the prospect red-haired and looking like a grouch, he can hunt up the letter R in the index, subhead G and reel off the proper line of argument. Selling electric light, heat and power depends on **know how** and **why** and **when**! There is no formula, no rule of thumb—you simply have to know your market in all its moods and phases, and study it, meet it, guide it and develop it.

All this requires ability of many kinds—creative, executive and sales genius are all essential, and it is well nigh impossible for any one man to attain 100 per cent. efficiency in all branches.

He must gather in the good ideas wherever he can find them, and hold them in readiness for Opportunity. Every man who works with his head finds some things which others miss, but though every one cannot be a creative genius, no man need neglect the opportunity to profit by the genius of his fellows. Nor should he disdain the wisdom of another just because it is not the product of his own mind.

"True as gospel," you say, "but Old Man Noah, himself, learned that from his grandfather."

No one doubts it. Everybody is interested in what the other chap does. But how many dollars do we make it earn for us? We read the account of some clever scheme which has resulted in the connecting of 200 fans in some Western town, or the story of some ingenious method of putting out flatirons, and we say "By Jove! Great idea that! I'll try that out myself next year," and what happens? We stow it away in some half ossified convolution in the back end of our cerebrum, and inside of a week it is buried deep under a brand new story we want to spring on Jones. When we hear something good and say "I'll remember that" it is usually a case of "Adieu forevermore." It's gone.

At first blush, all this sounds rather trifling, but consider: the central station salesman gains efficiency—which is sales power—with experience, and he gains experience solely by virtue of a ready-to-serve knowledge of human nature and methods of sales economy. The man who leads the sales force of any prospering central station is the man, not necessarily older or longer in the business, but stronger than they in resource, courage, optimism and in-

genuity. He must be able to point the way and suggest the means. The more such Dollar Ideas—original and borrowed — that man has at hand, filed away on paper and arranged for suggestive value, the greater is his ability to inspire his men with constantly refreshened point of view.

For instance:

A couple of years ago some ingenious chap discovered that the exact effect of a bulding outlined with electric lights could be produced by perforating a photograph of that building with a pin and then holding it before a lamp. The scheme was first given publicity in the *Electrical World,* and since then, to my knowledge has been put to good use by a number of companies to whom the idea had never suggested itself. The Potomac Electric Power Company, Washington, D. C., used it last March to secure a $10,000.00 appropriation from the Government for inaugural lighting, and almost as much from property owners along Pennsylvania Avenue. That was a Dollar Idea.

In Dayton, Ohio, somebody suggested a Model Show Window. The Dayton Lighting Company built a separate show window in the center of their display front, equipped with the most complete and efficient illumination sources, and this window is loaned to various merchants for model displays. The exhibit is advertised both by the merchant and the lighting company, and a card in the window bears the merchant's name. The merchant holds a key to the window, and his display lasts for a week or more. Here is a scheme feasible in any city where the central station has an office in a prominent location and if handled cleverly produces much publicity and good feeling; yet up to lately it had been unthought of. Another Dollar Idea.

Out in Wichita, Kansas, the Edison Light & Power Company ran an ad announcing "Electric Burglar Insurance, 50c a month," the same being a 2cp. lamp installed over the front porch and another over the back porch to burn all night. Just a little twist, with enough originality to pull. Such a scheme will gather in a few dollars in any town in the country. A Dollar Idea any company can use.

Last June the Denver Gas & Electric Company had a Dollar Idea. The weather was hot and sizzling, and it was suggested that they arrange a few 16-inch fans outside the window where the blast of cool air would strike every person who passed the corner. People gathered in front gratefully, and the cash sales of fans jumped immediately.

Up in the office of the Binghamton Light, Heat and Power Company, they have a large flat oak table with comfortable armchairs where customers sit and fill out contracts, write cheques, etc. It occurred to them that they were losing a valuable opportunity to do a little advertising. They got a large sheet of plate glass to cover the table and beneath it arranged photographs of various local installations of signs, outline lighting, window displays, power installations and various domestic applications of electricity. The table has aroused much interest. It was a Dollar Idea.

Out in South Bend, a representative of the Indiana & Michigan Electric Company went around to the tobacco stores and cigar stands and explained how an 8 cp. carbon lamp sealed into a water-proof socket and immersed in a jar of water would prove a much more efficient humidifier than the usual sponge. He suggested the use of a cut glass globe and tinted water to give a decorative effect, and the cigar men were enthusiastic. It was new, and it saved the trouble of wetting the sponge. I call that a Dollar Idea too.

The Dayton Lighting Company has also arranged a partnership with the stork. Every morning one of their men visits the office of the Board of Health, looks over the vital statistics, and gets out on the trail of the busy old bird. At every house he leaves a heating pad, a water heater or a milk warmer, explains its use, and departs. The records show that 90% of these appliances are retained, which is the proof of a Dollar Idea.

One more illustration. In July the Oklahoma Gas & Electric Company down in Oklahoma City was running a publicity campaign. The weather was hot, and the company was pushing fans, aided by a temporary scarcity of ice and a resultant typhoid fever scare. There were several daily papers in the city, and all of them were featuring cartoons on local subjects. The company suggested an amusing series about the man with the electric fan. It was taken up, and for nights the central figure of the cartoons was the fan, and the value of the advertising received therefrom can be appreciated. The idea that suggested that scheme was worth many dollars in killowatt hours of current consumed.

Such is the Dollar Idea. Taken singly, they sound simple enough. Even so, the deuce of spades is not inspiring of itself, but when you add to it 51 other cards, all properly marked, and in the hands of a competent card sharp, they can be made to produce a good living. One brick will hold a door open or it is handy to throw at a dog, but back it up with a few thousand more, a pile of mortar and a six-dollar-a-day trowel artist and that brick assumes a considerable air of dignity and worth.

The deuce of spades is money to the man who can call it out when he needs it, and the brick has its best value when the mortar is ready mixed. Dollar Ideas will earn dollars for every central station in the land if they are filed at hand and ready-to-serve. Card files are cheaper than lost opportunities. Get these ideas together. The more bricks you have, the bigger you can build the wall. It matters not whether the bricks be of your own making.

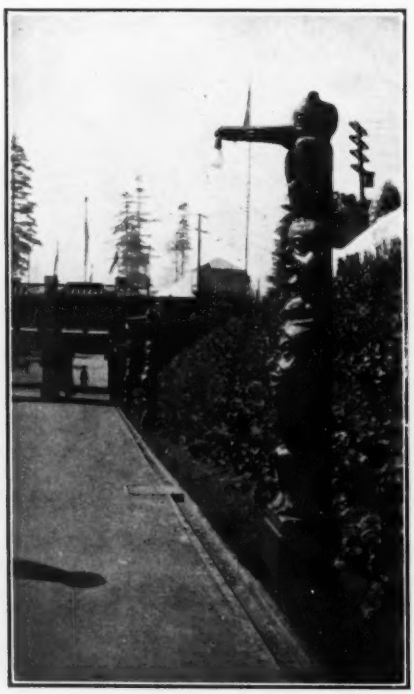
Good Dollar Ideas never die. Many a worthy sales scheme gets stale from too much use, and is abandoned, but if it works this year it will work next year and the year after, applied with discretion. Human nature is always the same. I know one manufacturer of current consuming devices, for instance, who has used the same series of ads in the trade papers for over two years, simply because the copy always pulls.

But some Dollar Ideas avail only at definite seasons of the year; others

apply only to particular classes of prospects. The central station commercial man must therefore arrange his sales schemes for use at the time when they will have the greatest suggestive value to him and the strongest appeal to his prospects. When the fall weather comes and people are all back from vacations and business is tuning up for the winter, I know a dozen Dollar Ideas that will come as inspirations to the the soliciting force of any company. New Ideas give new vigor and fresh mental impulse, and develop business before considered inaccessible.

No man can overload his memory without sure loss of efficiency, and efficiency means dollars of profit. No man can work to his capacity without reserve power. Dollar Ideas to the sales manager are as coal pile and emergency equipment.

Many central station commercial men are overlooking this fact—these Dollar Ideas are their profession and livelihood. Their value to themselves—to the world, depends solely on their fund of ready-to-serve sales schemes and their ingenuity and resource in applying the best of the world's Dollar Ideas.



Totem Pole Light Fixtures at the Seattle Fair

These grotesque lamp posts line the way leading to the "pay streak."

Steam Heating in Connection With Central Stations

Abstract of Paper Read before the Pennsylvania Electric Association
Eagles Mere, Penna., Sept. 8, 9 and 10, 1909

By Paul Mueller, Treasurer and Manager
The Erie Company, Erie, Pa.

IT is a well recognized fact that a highly successful manufacturing plant in any line must be one from which the very last cent is obtained not only from the primary product itself, but from the utilization of every possible by-product as well. District steam heating is a means of utilizing a by-product of the central station.

In starting a steam heating system in connection with an electric light plant, a steam heating company should be organized and merged with the electric company, so that the right to sell live steam cannot be questioned, if live steam is necessary when the system grows to the extent that it is required to supply the demand. Thus merged the company is well equipped to meet competition, and to obtain business from office buildings, theatres, apartment houses, hotels, municipal and school buildings, which otherwise could not be prevented from operating or installing isolated plants of their own. The advantages to the town are many. Dwellings are much more desirable and clean heated by city steam, and the properties demand higher prices. Coal and ash carts on the streets are reduced to a minimum, and the smoke nuisance is abated, leaving the community much improved and cleaner than without district heating system.

The street installation is quite easy and inexpensive to care for, if complete and laid out by careful and experienced engineers.

The usual season for the demand for steam is from the middle of September to the first or middle of June. Depending on the conditions, however, some companies find it profitable or desirable to keep enough steam on during the summer months to keep the system warm throughout. This prevents the rusting of pipes and fittings, the breaking of variators and other expansion devices, due to the rusted slips, and leaves the system ready to start at short notice in the case of a cold, wet spell coming out of season. This will cost nothing in non-condensing plants, and a neat business may be built up as well to help out, by being able to furnish a continuous supply of steam, for hot water tanks, in hotels, restaurants, flat buildings, barber shops, laundries, steam lunch tables, dish washing machines, coffee urns, etc., etc.

Services are usually installed from the mains into buildings at cost. The company usually furnishes at cost the reducing valves, cooling or economy coil, and trap, all of which are

necessary. It is always best, particularly in meter installations, to get consumers to install a separator at entrance to keep out any condensation from mains. With separators on all meter customers there will be much less complaint and adjustment of bills necessary later.

Flat Rates should be avoided if possible, and if given at all should be on office buildings where the maximum demand for heat is for only 12 hours. They are based on the total square feet of radiation connection or else on the cubical space heated. A flat rate customer as a rule will use no economy at all, and when rooms or house gets too hot will invariably throw open doors and windows rather than take the trouble to turn off the steam. From 30c per sq. ft. up, for direct radiation, and from 40c per sq. ft. up, for indirect radiation per year, is the usual basis for flat rate charge. This varies in different localities, due principally to the cost of coal.

On metered condensation the charge is made at so much per 1,000 lbs. of water trapped off. The rates that I have record of in this state vary from 40c to 75c either for all the condensations or the first 10,000 lbs. A number of companies use a sliding rate, which is a very good plan as it is only right that in steam as in other commodities the large consumer should get lower rates than the small. The lowest rate I have received is a sliding scale from Johnstown, Pa. It starts with 40c for the first 10,000 lbs. of condensation per month, and a reduction of 5c is made for each 10,000 lbs. used in addition, until 50,000 lbs. or above is reached, for which the charge is 20c per 1,000 lbs.

The opinion of the various plants in this state from which information was received is certainly in favor of the almost total use of the condensation meter, as it produces many ideal conditions. After the first few bills have been received it speedily stops all waste, and the consumer very suddenly acquires the habit of turning off the steam instead of opening the windows. They are more willing to cover bare pipes and it in general educates them so that they take greater interest and better care of their heating apparatus. The education will occasionally result in some amusing inquiries as to whether such and such a place has direct or indirect current, alternating or direct steam heat, but is all in the right direction. The benefit of the meter is best illustrated by a plotted curve of steam consumption of a plant before and after meters are installed. There will be gradual peaks in the morning and evening and some falling off at night, on the flat rate chart. In comparison with this the same curve with meters used, will show a marked decrease in total steam consumption with much more prominent peaks. There will be a sharp rise in the morning as people turn on steam when they get up, to warm the house after it has cooled off during the night, and this will gradually fall off by ten o'clock as the day gets warmer. It will gradually pick up again after three o'clock, when the sun goes down, and the cold of the evening begins. From this peak it will fall off pretty rapidly as the

steam is shut off before people retire for the night. Meter installations at Johnstown, Pa., showed an increase in earnings of 22 per cent. with a 7 per cent. decrease in coal consumption. There was probably considerable new business connected during this year or the decrease in coal consumption would have been even larger, and the earnings somewhat less than 22 per cent. On 140 customers at Scranton, Pa., on whom meters were installed last year in place of the old flat rates, the earnings per M. cu. ft. of space heated were increased from $4.35 to $5.40. There was also a reduction in coal, but due to the large number of flat rates remaining the amount was hard to get at. Most of the gentlemen present have had more or less experience furnishing public commodities on flat rate, whether it be gas, electricity, water or steam heat, and have noticed immediate waste by consumers with but few exceptions. A great deal of complaining is always done when they are put on a meter basis. However, if you insist on furnishing steam only on meter readings, although you may lose a few customers at first who will probably later return to your steam, equal results, as illustrated by the cases previously cited, will surely be accomplished. These results were much more than the bare figures represent, for when a certain mile of main begins to approach the limit of its capacity to furnish steam, and yields revenue with flat rates in force, by changing to meter, the waste is done away with and the earnings for the mile of pipe will be increased not only by the meters installed, but by additional new business which can then be satisfactorily handled.

The condensation meter itself is very simple, being a balance. On each side of the balance is a receptacle or cup that holds just a given weight of water, according to the size of the meter. The condensation always flows into the cup that is up, and when it receives its full weight it overbalances and goes down and dumps, the cup on the other side going up, and into it the condensation then runs. The balance is connected to the dial gearing which shows the number of pounds the meter dumps. As a rule, it is best to employ your meter gang during the summer, while the heat is off, to go around to each meter, and take it down and thoroughly clean it on the premises and put it back all ready for the fall. This will more than pay you later, as considerable trouble will be encountered if they are not cleaned each summer. As they work under no pressure, they cannot run fast, and any customer can easily be made to see that anything happening to it will retard it, and be in his favor.

As it is usually considered advisable for electric lighting companies to leave interior work to local jobbers, and not shoulder the responsibility for its later satisfaction, so is it advisable for the steam heat company to go no farther than to install service, connect it up, and install meter. The invariable result, if interior work is done, will be innumerable telephone calls to "turn on more heat; we are freezing!" while if not done the company assumes no responsibilty for their

consumer's system. Before the steam is turned on to the consumer it is essential that all of his system be carefully inspected. If on a flat rate, all piping should be covered, or else included in the total radiation on which charge is based. On meter, especial care should be taken to point out to the consumer all things which will tend to increase the steam necessary to heat building or house and size of bills as well, or cause lack of steam. Both the above being usually due to too much or too little radiation, bare pipes, or poorly installed systems. If these faults are clearly pointed out to him in advance, and he is requested to fix them and does not, he can be given to understand no complaints for poor service or excessive bills will be later considered. Many complaints are thus saved, and after one or two bills the consumer speedily proceeds to have a local steam fitter carry out your original suggestions.

The average new customer will expect to be able to heat his house with district steam at the cost of his previous yearly coal supplies. If he remodels the system in his house to a good, correctly installed atmospheric system, he may come somewhere near it if he formerly used a hot air furnace or possibly an indirect steam system. After a season or two of use he will appreciate the many other advantages of city steam which actual experience was necessary to show him.

The successful and most economical operation of a power house using its exhaust steam for heating is a thing that has to be carefully worked out for each individual case. The point aimed at, of course, being the output of both steam and electricity as cheap as possible. The demand of one must be balanced against the demand of the other, and a happy medium arrived at, by operating only the equipment best suited to the conditions, with no aid or as little as possible from live steam.

A Dollar Idea

By W. F. Lewis, Power Engineer
Rockford Electric Company, Rockford, Ill.

DURING one week in May we arranged another window attraction to advertise electric motor drive for printing presses. We arranged with a local printer for a Chandler & Price job press, which was set up in our show windows. A pressman was on the ground and jobs were run off just as though the press was working in the printing office. It made a very interesting and convincing demonstration, and caused much comment.

On Saturday night a picture post card with a halftone view of the river showing the water power and the station was run off and given out to the watching crowds as a souvenir.

Co-Operation With Contractors

Abstract of Paper Read before the Pennsylvania Electric Association
Eagles Mere, Penna., Sept. 8, 9 and 10, 1909

By W. C. Anderson, Manager
Luzerne County Gas & Electric Company, Plymouth, Pa.

ANY profit that may be derived from doing contracting cannot for a single moment be compared with the value of the assistance of regular contractors in gaining the confidence of the community. The company needs friends—all that it can get—and if it neglects any means of making them it is likely, sooner or later, to pay dearly.

The Luzerne County Company until two years ago did wiring and contracting work, but has felt well repaid for giving it up. More local men have taken up the work in the various towns and all are keeping busy. The company carries motors and material in stock in order to be prepared to handle a large job at short notice, but makes no effort to take even such work from the contractor, although it canvasses thoroughly and does everything possible to land the business, through the contractor doing the work. The store room is at the service of the contractor and any material there is sold to him at cost or may be borrowed and replaced when he can obtain the goods himself elsewhere.

Of course the kind of co-operation which can be obtained between company and contractor depends to a large extent on the type of contractors doing business in any particular town but it can hardly be denied that co-operation is not only desirable but necessary for the best interest of all concerned.

In Allentown the attempts to develop the territory began something over a year ago. Previous to that time the company had no solicitors whatever and confined its attention practically to taking on such customers as applied for service and also sold no apparatus or did any work whatever, this being left to contractors. The contractors, to a large extent, trusted to the public to call on them when they wished any apparatus or wiring to be done, and to the credit of the public it may be said they did a pretty good job of educating themselves. The first attempts at development were made through a letter to the contractors asking them to get together and form an association in order to assist in the education of the public and the pushing of the various power and light consuming devices, inviting them to the offices for an informal smoker and discussion of policies to be pursued by the light company whose intention it was to solicit business but not to sell apparatus or do wiring.

They all accepted the invitation and were talked to regarding what was wanted to develop the territory and they were given to understand that the company would leave all the selling to them provided they

assisted in pushing the business, being warned that unless they did it would be necessary for the company to enter into the sale of apparatus. There was quite a little enthusiasm among the contractors who had stores and showrooms regarding an association as they had suffered quite a little in regard to the work done by wiremen without offices or responsibility and a committee was appointed to draw up a constitution and by-laws and the second meeting was called for a month following to elect officers and to meet the Underwriters' representative with whom contractors had been having trouble on account of passing work. At the second meeting a very good understanding between the contractors and the Underwriters took place and they were informed that the light company had renovated its offices and windows and that the space would be available to the contractors for the exhibition of the goods they had for sale, if the displays were made attractive, without cost to them, and with the added warning that the space would have to be filled up, if not by them, then by the light company itself. The solicitors were put on in the meantime by the light company to develop the use of current and inquiries for the sale of apparatus and wiring were turned over to the contractors. The idea being rather new to them they did not quite grasp that they were being helped as well as the light company and although they were followed up by the light company they only made one or two spasmodic efforts to use the space offered by the light company, which was on the main street in the city, and practically none to develop the territory.

After one or two months of waiting they were all informed by letter that not having taken advantage of the exhibit space the light company was going to install sufficient apparatus to fill up the space and in order to cover the expense would be compelled to sell apparatus, which was accordingly done. They were also informed that the development of the industry in this manner would let them obtain more business from their wiring, which would be left to them, than they had gotten handling the sales themselves. There was naturally a bad howl from the contractors following "the usurpation of their business," but as time went on it was proved that they were doing more business than they had ever done previously and by personal talks and explanation they, during the following six months, became favorably disposed toward the light company and at the present time they are pushing the business as much as could be expected and are also making attempts to compete with the light company in sales which is encouraged in every way by holding up the prices, with the exception of the tungsten lamps, which they put out at cost. This was done to prevent the enthusiasm in the use of 25 watt lamps in place of 16 cp. and not properly educating the customer to a higher standard of illumination which their solicitors had been able to do without much trouble and which has made a great improvement in the illuminating conditions of the city.

The experience of these two com-

panies, which may have been similar to that of many others, indicates that it is best for the Central Station to keep out of the wiring business unless there is keen competition between two companies when special action must be taken to meet special conditions.

Getting Contracts With a 40-Foot Rope

The Associated Retailers in Fort Smith, Arkansas, Campaign for Window Lighting in a New Way

By Glenn Marston

ARKANSAS is usually considered the home of razor backed hogs, backwoodsmen and semi-weekly trains; but let the man with that idea stop off at Fort Smith—he will find that a first class hustler has to hustle just a little harder than he ever did before if he is to keep up with the procession.

Fort Smith had a Commercial Club. It was a fine institution, a big help to the city—for a while. Later it became dyspeptic—its internal organization became deranged, and it went the way of all dyspeptics, first querulous, then hypocritical, finally useless.

Some of the Commercial Club members were live ones—others were less so. The live ones perfected a new organization this spring and called themselves the Associated Retailers. They offered to pay railroad fares to out of town purchasers. They got after the council to force the removal of wooden awnings on the main street—Garrison Avenue. They compelled everybody to sign a petition endorsing a free bridge to Van Buren across the Arkansas River, and got it.

They decided to advertise the town. Now the Commercial Club had decided to do the same thing—so long ago that the memory of men runneth not to the contrary. That the Commercial Club did more than to decide is not of record; but the Retailers, being good advertisers themselves, thought it about time to get busy. Preliminary solicitation brought out the scoffers. "Why didn't the Commercial Club advertise years ago?" etc. Nobody would be taken in on an old joke.

Harry Albers, President of the Retailers, said, "We'll show 'em," and went over to the hardware store. He came back with forty feet of rope. Now a rope of such dimensions commands the utmost respect in Arkansas, for reasons unmentionable; but Albers had an idea. The rope was meant for no neck—it was arms Albers wanted. He tied one end of the rope round his own arm and then got fifteen more live ones and attached them to the rope by the left arm.

This was Albers' subscription committee. No Committeeman could run away to meet a friend, and

when the committee entered a store and surrounded the proprietor he was certainly "roped in." There was no escape—and in 36 hours the Retailers had an advertising fund of over $10,000.

All this appears to have little to do with lighting, but it shows the spirit of the Associated Retailers—they do things and don't even stop for congratulations. Before one job's done another's started. So it came about that on May 10th they met to talk things over and listen to an address on advertising by Mr. Bolles of St. Louis, their advertising agent. In the course of his remarks Mr. Bolles said, "Well lighted windows are the best asset a merchant can have, and constitute his best advertisement."

As soon as Bolles sat down a Retailer jumped up and moved the appointment of a committee to investigate window lighting. An hour and a half later—the interim being conversationally occupied—the resolution was unanimously voted—the final form being that the committee establish the hours of burning, and get approximate costs from the Light and Traction Company to be reported at the next meeting.

At the next meeting, by a strange coincidence, E. L. Callahan of H. M. Byllesby & Co., who operate the Fort Smith Light & Traction Co., was in the city, and was asked to address the Retailers on the subject of lighting. Callahan dwelt strongly on the need of co-operation. "You must all work together," he said, "if the boosting of Fort Smith is to be the success we all look forward to. If you break a tooth in the steering gear of a machine you are likely to land in the ditch. We must not have any broken gears in the booster's band wagon."

Immediately Ira D. Oglesby got up. Now, Oglesby is no friend of the Traction Company—nor is he an enemy, even though he spends his own good money every once in a while for advertising space in which he lambastes the company; but on general principles, Mr. Oglesby is a booster. He moved that a committee be appointed to call upon the council and ask the city to erect a huge electric sign to extend from curb to curb setting forth the natural advantages of the city. It was adopted unanimously.

The Light & Traction Company could not give a rate that evening, because it did not know the volume of business to be expected. If the retailers would find out how many merchants would sign the agreement, the company would then make a lower rate than it could safely make without this knowledge.

Next day a committee started out to sound the merchants. At three o'clock Albers 'phoned the Traction Company to make a rate to become effective when 90 per cent of the existing installations signed up. Practically every store is wired for electric light, but the difficulty was in getting the merchants to burn them. The stores closed early and no proprietor wanted to come back at ten or twelve to shut off his lights.

Next morning the Company submitted its rates, being on a flat monthly candle-power basis to burn from dusk to midnight. The mer-

chant was to turn on the lights and the company to turn them off. The merchant was also to rewire his windows to provide for an outdoor switch for the company's patrolman. Meanwhile plans were being made by the Retailers' committee to see that they got the required business. A proposal was made and adopted to make a map of Garrison Avenue, showing the buildings in solid black. This was to be published in the morning paper, and as signatures were secured the signer's store was to be routed out and his name substituted, showing that he had joined the light brigade.

But the map was never used. The company printed a special contract for window lighting. Several hundred copies were given to the committee, and next morning they divided the street into sections, one committeeman being assigned to each. He appointed two sub-committeemen, stuck the contracts into his pocket and started out. At the end of the second day the company had contracts for 75% of the stores on the street—lights to burn from dusk to midnight, where they had never burned past eight before.

This shows the respect in which the Retailers are held. When they take hold of anything it goes. Now that the contracts are signed for window lighting, the company is at work increasing the individual illumination in each window.

The big sign will, it is expected, be put up before the end of the year, and already the Retailers are talking of ornamental curb lighting. The sign will consist of the city slogan —an oval bearing the words **"Fort Smith is the place for you"**—and two lines within the oval saying, "Natural Gas for Manufacturers." The sign is to be placed on Garrison Avenue where it can be seen from four railroads, while passengers arriving on the three lines terminating in Fort Smith will see it as they go to their homes or hotels. The company has offered to erect and maintain the sign and furnish current to the city at cost for lighting it.

Oh! yes, the Commercial Club recently died. From its remains the Retailers have formed the Commercial League, which is doing great things for the city, and promises more. They realize down there that light and prosperity go hand in hand.

Our Business and Yours

The Alleged "Tungsten Mantle"

A CERTAIN manufacturer of incandescent gas mantles has suddenly launched a campaign national in scope in behalf of a so-called "Tungsten Mantle." The mails have been deluged with literature and large space has been used in the popular magazines and weeklies, among them the *Saturday Evening Post*, *Collier's*, *Everybody's*, *McClure's*, *American* and others. It is claimed that the offer is reaching 4,000,000 families, and there is no reason to doubt it.

The proposition is unusually attractive, being a coupon scheme whereby the consumer is enabled to secure a trial mantle from any dealer for fifteen cents. The mantle itself is undoubtedly all that is boasted, for, in fact, there is no claim made other than that it "will outlast several ordinary mantles because it is made extra thick and strong and of specially tough fiber" and that it "gives a powerful light of great candlepower." Yet the wide publicity given the offer and the prominent use of the word "tungsten" will unquestionably force an enormous sale and the manufacturers of tungsten lamps and all central stations will do well to ward against it.

Little as the virtues of tungsten efficiency are known to the great majority, still the constant and insistent pressure of the year's publicity has had a powerful and a now rapidly developing effect, and to many the word "tungsten" is the whole story. The use of the word, therefore, as applied to a gas mantle will undoubtedly mislead and mystify numberless uninformed consumers who will vainly imagine that they see in it an adaptation of the wonderful electric illuminant to the less expensive system of gas lighting.

There can probably be no question as to the legal right of a rival industry to make use of this word for sales capital, but champions of the electric interests would do well to forestall any possible bad influence from this campaign by explaining when introducing the tungsten lamp, that there is but one "tungsten" and that is ours.

Holiday Stock

THERE is little disposition nowadays to question the importance of *making sales*. The central station man realizes more than ever that he is a merchant first of all and a manufacturer of his merchandise, because circumstances compel it.

Last winter, this was amply demonstrated during the holidays when the office of the electric light company was stocked with current consuming

devices suitable as Christmas gifts. This year should show a further step in advance.

Have you arranged for an attractive window display?

Have you ordered an ample stock of household heating devices, motor driven appliances, portable lamps and those innumerable home comforts that central station service offers?

The middle of October seems a long way before Christmas, but it is not far in advance of the annual holiday shopping season. Don't leave the matter of holiday trade too long unconsidered. Don't under-estimate the importance of the December market to every central station, and the possible influence of the current consuming Christmas gift.

Watch the window methods of the successful retail merchant and fall in line. You have more to sell than he, for every holiday sale you make will be tied to your generators with a copper string and will leave its tally on the monthly bill.

Think the matter over and be ready in advance with the line of appliances which will make the strongest suggestive appeal to the busy buyer of Christmas gifts.

Believe the Advertiser

A YEAR or so ago when a paint manufacturer furnished the painters with cards reading "WET PAINT—Believe the Painter," we all smiled and philosophized a bit on that human tendency to "Try it and see." Yet we turn right around in ten minutes and where we *should* "Try it and see" we hold back and watch the actions of the ever-expected "other fellow."

The other day, the Editor of SELLING ELECTRICITY sat talking to the general manager of a central station in the middle-west about the sign business. He told of his efforts to build up a good electric sign load and of the slow progress which was made.

"Have you called in any of the manufacturers to help you?" he was asked.

"Well, no," he said. "Do you suppose they would really do anything for me? If I could get them to send some good advertising matter to my good prospects and perhaps put a man out here to work the business up a bit, I'd give them all the orders."

Now, this man reads SELLING ELECTRICITY every month, inside and out, he claims, and he is a live, wide-awake progressive salesman, but yet he has disregarded continuous offers from all the largest electric sign builders in the country to give him just the aid he needs. When these offers were repeated to him and vouched for he became enthusiastic and took immediate steps to start the good work in motion, though he had read them before many times, and the names of the manufacturers were ample guarantee of good faith.

It is strange that this should be, for such offers are straight business and the profit to all concerned is easily seen, but there are many central station men who still hold back and refuse to take it seriously.

When the paint is marked "Wet," believe the painter—at least give him the benefit of the doubt—for his interests are your own and he is protecting your own good clothes as well as his newly brushed job. When the advertiser offers to come half way or

more, let him come—he has probably figured out a way to enjoy the trip, and even if he goes back he pays his own fare.

When the ads talk to *you*, why not reply?

Exposing a Sin

A LETTER just came in from the Union Electric Company, of Dubuque, Iowa, which read partly as follows:—

"From the way people are eternally boosting Denver it would appear that nothing is holy unless patterned after the Denver method. We have no doubt that it is a city of light, but the man who sells electric signs for us is a little 'peeved' to have you credit his Telegraph-Herald job to Denver. Denver is not any stronger on newspaper signs than Dubuque—we have three newspapers in the town and each one of them has a sign, so that makes us 100% strong."

We wrote back more or less this way:—

"As it is up to me to make an apology this time, let me see!—What shall I say?—Ah!—In a compositor's type rack the word Dubuque always lies in the next compartment to the word Denver. On taking the matter up with our printer, I find that at the moment the man was setting this caption the fire engine went by and he missed his guess.

"However, I am mighty sorry that it happened and will see that the error is announced in our next issue. Please explain to Mr. Lindl, and tell him that this excuse is the best I could work up right off the bat."

We have humbled ourselves and we feel better.

News and Reviews

7th Annual Meeting of Sons of Jove

The Seventh Annual Meeting of the Rejuvenated Sons of Jove will be held in Cleveland, Ohio, on October 14-15, 1909, with headquarters at the Hollenden Hotel.

According to the old Grecian Mythology on which the Ritual of the Order is built up, the 15th day of October in each year was sacred to the King of the Gods, and was called by his name—Jupiter's Day. Mr. J. Robert Crouse, No. 260, of Cleveland, Ohio, the Reigning Jupiter of the Sons of Jove, decreed that the Convention be concentrated so far as possible into the one day, October 15th.

A reception to visiting Jovians will be given at the Hollenden Hotel on the evening of the 14th. On Jupiter's Day, the business session will be held in the morning; in the afternoon a class of one hundred or more initiates will be led from darkness into light. The Joviation in the evening will consist of a dinner and vaudeville entertainment in charge of H. H. Cudmore and H. C. Rice of Cleveland.

A quarter of a million clever, snappy envelope fliers advertising the Order and its annual meeting are being distributed by over three hundred electrical firms throughout the country. Over five hundred new members have been added during the year, making a total membership of about twenty-five hundred.

Edison Purchasing Agents Association

At a meeting of the Association of Edison Purchasing Agents, which took place at Briarcliff Lodge, Briarcliff Manor, N. Y., the following officers were elected:

President, H. C. Lucas, Philadelphia Electric Co.

1st Vice Pres., W. H. Francis, Edison Elec. Ill'g Co. of Boston.
2nd Vice Pres., J. W. Brennan, The Edison Ill'g Co., Detroit, Mich.
Secretary, H. F. Frasse, Edison Elec. Ill'g Co. of Brooklyn.
Treasurer, Andrew Banks, Jr., Consolidated Gas, Elec. Lt. & Power Co. of Baltimore.
Stock Controller, J. J. Miley, Minneapolis General Electric Co.

The meeting took place at the same time as the convention of the Association of Edison Illuminating Companies, and several new members were enrolled. At the present date the roster covers about 35 per cent of Edison Illuminating Companies.

The purpose of the Association is for the general circulation of information and to induce friendly business intercourse.

Activity in Toronto

Mr. Eugene Creed, Chief Agent Power Department, The Toronto Electric Company, Canada, reports that business is exceptionally brisk at this time. The size of his department has been increased by three. Mr. Mervin Smith, late of the Canadian Westinghouse Company will canvass for lighting; Mr. Ralph S. Sheppard will work on industrial heating business and a young woman solicitor has been retained to canvass the residence district for household heating appliance business. Mr. Creed announces that he will be glad to hear from manufacturers of industrial heating apparatus and especially electric welding machinery, as he is installing a display of industrial heating appliances in the showroom.

Buckeye Gets Tri-State Pitcher

Mr. H. D. Porter, who was formerly connected with the Post Glover Electric Company of Cincinnati has joined the organization of the Buckeye Electric Company of Cleveland.

Mr. Porter was formerly pitcher for Williamsburg, Pa., in the Tri-State League and made his first appearance in the Buckeye circle at the Eagles Mere Convention of the Pennsylvania Electric Association.

Ennis Goes to Mexico

Mr. Walter Ennis, the well-known lamp man, who has for long been district manager of the Buckeye Electric Company in Pittsburg, leaves on September 15th for Mexico, where he will be established permanently. Mr. Ennis will introduce Buckeye lamps in the Mexican market and expects to develope a large business in Buckeye tungsten lamps.

Vermont Convention

The Vermont Electrical Association held an unusually successful convention at Burlington, Vt., September 15 and 16, an important outcome being affiliation with the National Electric Light Association.

The program opened with an address by Mr. V. R. Lansingh of the Holophane Company on "The Need of Educational Work in Illumination." Mr. Lansingh insisted upon the importance of educating, not only the public, but lighting solicitors and even managers. The talk was along practical lines, as various classes of rooms, both in residence and commercial lighting, were touched upon and the proper methods of solving each problem explained.

C. H. Scote of the General Electric Company offered a useful paper on "The Extension of Power Business for Central Stations." T. Commerford Martin spoke on the desirability of the Vermont Association affiliating with the National Electric Light Association and was successful in securing favorable action. Mr. Martin also delivered an address on "Some Conditions of Electrical Development," in which he spoke for breadth of service whereby the station's load would be spread out over a greater number of hours instead of being confined to an abrupt peak. Mr. F. W. Willcox of the General Electric Company presented a paper on "Tungsten Lamps" in which he stated that over a million and a half of these lamps were sold by his company alone during the past six months.

As is usual with the Vermont Association, the entertainment of guests was lavish, consisting of a trolley ride to Fort Ethan Allen, review of U. S. cavalry drill, lake excursion to Bluff Point and luncheon at the famous Hotel Champlain.

Straight Talk by Gas Men

A number of live and pithy papers were presented before the 17th Annual Convention of the Pacific Coast Gas Association, San Francisco, September 21, 22 and 23.

Mr. Wm. Baurhyte, in particular, voiced some principles which apply with equal force to both gas and electric companies. He said, in part:

The first thing necessary in the education of consumers is the education of your employees. All the employees of the Los Angeles Gas and Electric Corporation in whatever capacity are required to treat all patrons with extreme courtesy. Those having complaints are given respectful attention by the employees of the investigation department. After ascertaining the nature of the complaint effort is immediately made to correct the same. If the party is an applicant for service or meter, or both, he receives prompt attention. No promises are made that cannot be fulfilled.

Another thing necessary in the education of the consumer is to provide a way whereby he can transact his business with as little friction and delay as possible.

It was early recognized that the word "complaint" was very suggestive. The word "complaint" has been entirely eliminated in our office; instead, we have an investigation department. Immediate attention is given to all complaints and a report rendered, either favorable or unfavorable, at the earliest moment. It is promptness and attention to detail that pleases.

Another method of education and one that has been found very effective is the employment of a force of solicitors, whose business it is to look for trouble. They are assigned to a district with instructions to visit each consumer and inquire as to the service that is being rendered. Upon being informed this solicitor proceeds to investigate. If it is improper adjustment of stove or burner, he soon remedies it.

If there is really bad service having other causes and which he cannot repair he promises immediate attention, which is promptly given upon receipt of his order by the investigation department.

The work of the solicitor is supplemented by advertisements in the daily papers, calling attention to the really superb service rendered by the corporation and stating that any faults that may exist are purely local in character and can be quickly remedied if the party using the gas or electricity will at once communicate with the investigation department. We find also that these solicitors are very useful in satisfying consumers who are dissatisfied with their bills. After going over the house and inspecting gas appliances and also noting conditions, they are able to call attention to useless consumption of gas or electricity and to suggest ideas whereby the consumption may be reduced.

This attention and apparent interest is very pleasing to patrons. By this method they are led to believe that the corporation actually is trying to serve them in a proper manner and at the least possible cost to the consumer.

New Commercial Manager at Richmond, Ind.

Mr. W. J. Harding, formerly of the Susquehanna Railway Light and Power Company, 40 Wall Street, New York, has recently joined the Richmond (Ind.) Light, Heat and Power Company, where he holds the position of Commercial Manager.

The Richmond Company has recently become very aggressive in its commercial work. Mr. Fred Schornstein, sign expert, has stirred up the merchants of the "panic proof city" and reports large increases in the amount of display lighting.

Mr. Bauder Lectures in Scranton

Mr. P. F. Bauder of the Engineering Department of the National Electric Lamp Association lectured before the Engineers' Club in Scranton, on September 9th. Mr. Bauder's talk was illustrated with lantern slides, covering the origin, development and process of manufacture of the various types of illuminants now in commercial use.

Andrews With G. E.

The General Electric Company has taken on William C. Andrews, formerly sales department engineer of the Stanley Instrument Company. Mr. Andrews will be stationed in the main lamp offices at Harrison.

Extract from a Paper by Mr. H. J. Gille on the Business Qualifications of the Engineer

Mr. H. J. Gille, Contract Agent, Minneapolis General Electric Company, recently presented a paper before the Engineers' Society of the University of Minnesota on "The Business Qualifications of the Engineer." After discussing the operating and economic problems of the central station engineer, Mr. Gille gives his views as to the necessity for a thorough industrial knowledge as well, and his belief that the technical man is best qualified to serve the public utility company.

The following extract from a Minneapolis paper covers this phase of the paper:

Up to within the last few years, very little attention has been given to the business end of the industry,—the engineer having devoted his time and attention to the development and perfection of generating and distributing apparatus—also current consuming devices, which not only increase the earning capacity of the consumer's investment by increasing the output of his plant and reducing the cost, but which have increased the comforts of the home, and made it possible to secure cheerfulness in the home, which has not been possible heretofore. Furthermore, it has greatly decreased the drudgery of the housewife, by providing appliances which would not have been possible in any other way. The question, therefore, which confronts the engineer is,—the introduction of these devices to the needs of the public. This, for the purpose of this discussion, may be divided into three classes:—

The first is such business as consists of ordinary light and power,—the use and economy of which is self-evident; that is, business secured from customers who know they can use electric service advantageously—who feel that they cannot get along without it, in fact. This is true in the lighting of the modern, up-to-date store or home.

Another case may be where a grocer has operated his coffee mill by hand for many years. Somewhere he has seen a coffee mill operated by an electric motor, and it occurs to him that he, too, can save time and labor by using an electric motor. Such a consumer takes the initiative in applying electric service.

Another case, somewhat similar, would be where the engineer passes by a store which may be poorly lighted, or a factory where the machinery may be indifferently run, and the need of better lighting or power service is perfectly apparent. In such cases it is not difficult to get customers interested in the service. It however requires careful planning and study to suggest to the prospective consumer the advantages and economy in providing proper service, —in the case of illumination the advantage to be gained in business by having a well lighted store. Most merchants realize that trade follows the light and that customers prefer to do business in a store that is well lighted.

The second class is business where the merchant does not realize fully the advantages to be gained by a well lighted store, and does not appreciate the economies to be obtained with the electric drive—being content to run along as he has been doing. In fact, he has not given this subject any consideration whatever. As an illustration, the proprietor of a store has been using some other medium for illumination; the interior has become dingy and needs overhauling. Upon being approached by an engineer who is well informed as to the possibilities and cost of electrical illumination and who presents the subject clearly and convincingly, the merchant is readily led to consider suggestions which will enable him, for instance, to make a very striking window display and to re-arrange the lighting of the whole store so as to vastly increase its attractiveness and enable him to show his goods to much better advantage than before. The argument, as in the first class, is that "trade follows light," and that the buying public is sure to patronize a well lighted store in preference to a dingy one. The arguments for better air, safety from fire, freedom from danger of matches, less damage to fine merchandise, the elimination of dust and soot, appeal to him, and he will in a general way appreciate the advantages of a high-grade illumination. After considering the matter thoroughly, he is fully convinced that the substitution of electric light is desirable, and that the cost of wiring, fixtures and other expenditures for light itself will be more than compensated for by the greater attractiveness of his store and the greater increase in his business.

Another case would be where a merchant has been operoting an isolated plant, and the service has been run down—although the merchant perhaps does not realize it. The fact of his being able to secure much improved service at no increase in cost, and to be relieved of the annoyances—dirt from coal, vibration of the building, etc.—all should convince him that it is desirable for him to get better service. He must realize that it is obvious that a company that is in the lighting business can furnish better service than can be furnished by an isolated plant. Such a plant, if a small one, is usually neglected. In such cases, in order to convince the merchant of the necessity of better service, one good plan is to call his attention to others who have been similarly situated. When he becomes interested in the proposition, it is necessary for the engineer to make a careful estimate of the cost of operating the plant, which should include all items which enter into the cost of producing service—such as interest on investment, depreciation, taxes, labor, fuel, oil, waste, packing, boiler compound, removing the ashes, water, carbons, globes, lamp renewals, insurance, machinery and lamp repairs, value of space, damage to building caused by vibration, damage to merchandise due to soot and dirt, and damage to business due to plant being out of service. When a merchant fully realizes all the details of such operation, he will be very much interested to know what the same service will cost. The engineer therefore, should make a very careful, conscientious estimate of the amount of current required by the merchant.

The merchant will realize the advantages to be gained by being relieved of the annoyances—but what will appeal to him most will be the increased service and cost of operation. All things considered, he is not so much interested in what the rates are as he is in what it is going to cost compared with some other method of getting the same or better results.

The third class is the most difficult to reach, but one which—when developed—will very largely increase the electric business. This broadly covers all use for current other than those included in the first two classes. The use exists, but has not been developed, such as a large amount of power business and the use of current in the homes. This may be designated as latent business, and may be illustrated by the requirements of a manufacturer using current on a large scale for light, power and heating purposes, for instance, planing mills, sash and door factories, iron working shops, laundries, mills, brickyards, printing establishments, pumping water to supply cities and towns, hoisting and excavating textile works, and similar large enterprises, where the opportunity for introducing the electric drive seems at first glance small. On the other hand, quite a number of industries of this kind have sufficient refuse to burn to produce the power necessary in their business. There may, however, be a market developed for this refuse which would make it more valuable than if used for fuel.

The application of current in the home offers many conveniences and comforts that could not be accomplished in any other way, and with the introduction of high efficient lighting units, the cost is less, all things considered, than other forms of illumination; it is, therefore, evident that electricity will displace other methods where it can be obtained.

In this same class can also be included such service as supplying motor generators, the charging of automobiles, dental and tonsorial apparatus, refrigeration, illuminated signs, cooling and purifying of air, the process of vacuum cleaning in large buildings, blowing blacksmiths' forges, application of current to stoneyards and quarries, use of current in hospitals, bakeries, confectionery, ice-cream factories, thawing of water pipes, operation of musical instruments, heating of glue pots, sterilizers, etc.,—all of which require not only a knowledge of the apparatus but also a knowledge of the application, the cost of operation, and the benefits to be derived therefrom by the public. There are, therefore, many problems which enter into the development of this business, which require a careful study on the part of the engineer. Therefore, an engineer must possess business qualifications in order to successfully meet the requirements of the industry.

"How can this knowledge be acquired by a man attending a technical school?" At best, while attending a technical school, he can only get a good start, but if he gets a good start he will have a tremendous advantage when he enters the industrial work after he graduates. We are not all philanthropists, and although we love our work—put our whole heart into it—we cannot help but feel that our work has a money value both for our employer and ourselves, and the amount of money he gets is limited only by our earning capacity. This is probably a vulgar way to say it, but from my experience with men, I have reached the conclusion that it represents the facts.

My suggestion for getting this start would be for you to get acquainted with your associates; study them socially, their habits and manner, discuss matters with them to learn their method of reasoning; get their ideas and follow them out; get acquainted with men of experience in the business, talk with them at every opportunity; never be afraid to ask questions even if you think they may seem foolish; study carefully the various branches of the industry for the purpose of finding out for which branch you are best fitted, for the reason that you may succeed best in some particular branch; study achievements of successful men, get at the facts, our method of reasoning does not alter the facts—the truth always remains; familiarize yourself with the uses for current, study carefully the requirements and needs of the public; get cuts and descriptive matter of new appliances and of appliances that have been in use for some time—with which you are not entirely familiar; keep all information that you gather systematic, and in such form that you can find it when you want it, as it may serve a very useful purpose; study carefully the trade and technical papers, and otherwise keep advised of the various new and novel uses for electricity which are developed from time to time.

A suggestion would be to visit manufacturing plants in operation, when you have time—not only to become familiar with electric drives and illumination, but with the process of manufacture and to meet business men. I am quite sure that most manufacturers in this city would be very glad to assist you in every way possible. Such visits may lead to acquaintances and experimental testing of machinery which would be very valuable.

We are fortunate to be associated in an industry which affords the greatest opportunity for advancements and development; which has provided the means for the production of unmeasured wealth, reduced the labor of mankind, increased his comforts, and which promises yet greater things for the future.

The Ideal House

"Model" and "Ideal" houses, embodying the ideas of different men are becoming very plentiful.

No two men seem to agree as to just what the ideal house is; all the houses have electric lighting, some electric cooking and one or two electric heating.

The Brooklyn Edison Company has one in Viske Terrace, that is, of course, electrically lighted, has electric stove and gas stove, and is steam heated. This seems to embrace not a great deal larger consumption of electricity than is used in the average house, except as this "model" house has a large number of small articles such as irons, small motors and water heaters, where the

ordinary house has seldom more than one or two such conveniences.

On the other hand, the house at the Manchester Exhibition went the electrical limit, even the doors being opened automatically by electricity.

Mr. F. M. Sinsabough, of the Carrollton (Ill.) Light, Heat and Power Company has recently completed what seems to us the most rational one yet built.

It is built of concrete blocks, without a chimney. It is heated by steam piped from the station, with electric heaters as auxiliaries. The cooking is done with an electric stove and oven. Electricity is in all places where it is practicable. This is, perhaps, the best example of the electric home yet built by a man of moderate means for actual residence use.

Questions on Lamps

A unique and interesting department of *Building Management* is "Correspondence on Electric Lamps" conducted by George Loring of the Shelby Electric Company.

Building Management is a trade paper for building managers. Mr. Loring's department is a question box in which these men ask for authoritative information. The following questions in the November issue indicate the sort of information lamp users desire and should contain a hint not alone to writers of lamp advertising, but to solicitors as to what the public wants to know about lamps.

Question 1.—What is the result when tungsten lamps are operated in other than a vertical position?

Question 2.—Please tell me the sizes in which tungsten lamps are made.

Question 3.—What is the length of life of a tungsten 40-watt lamp compared with carbon filament and tantalum lamps?

Question 4.—Does bulb frosting decrease the life of the lamp?

Question 5.—What is the percentage of loss of light when a lamp is frosted?

Question 6.—Will tungsten operate on either a direct or alternating current?

Question 7.—Please give me a comparison between a 16-carbon filament lamp and a 25-watt tungsten.

Question 8.—Are tantalum lamps satisfactory on alternating current?

Question 9.—What is the percentage of breakage in shipment?

Question 10.—Do tungsten lamps require special fixtures?

Question 11.—Would you advise using Holophane shades with tungsten lamps in all cases?

Question 12.—Is a tungsten lamp more satisfactory the higher it is placed?

Question 13.—What is the limit in height of satisfactory lighting with a cluster of five 40-watt tungstens?

Question 14.—Are tungsten lamps satisfactory for street lighting? What sizes are used?

Question 15.—Can tungsten lamps be used in elevators, or will the vibration cause them to break?

Question 16.—Isn't there a danger of theft when such expensive lamps are used? Is there any way of locking the lamps to the base?

Central Station a Rental Agency

The Marion, Ind., Light & Heating Company has developed its rental department to furnish information in regard to houses in that city which are provided with electric wiring, and is publishing advertisements in the daily papers which read as follows:

"If you contemplate changing houses or locating in Marion, it will pay you to keep in touch with our rental bulletin boards, which are located on the west side of the square and at our office. On these boards you will find the location of the houses, number of rooms, and the amount they rent for. All are wired for electric convenience and economy. If you don't find one listed on the board that suits you, 'phone us. We will try and get you one that will please you."

Interest in Steam Heating

At the first Convention of the New England Section of the N. E. L. A., held at Newcastle, N. H., Sept. 8-10, special interest was manifested in the paper on "The Advantages of Steam Heating for Electric Light Companies," by C. R. Bishop.

Mr. Bishop pointed out that Pennsylvania has 69 central heating plants and Illinois 30. New England, with 172 cities of over 5000 population, has only 3 district heating plants.

How to Place Your Lights to Drive the Best Illuminations

The following item comes from *Everbest Magazine*, the little house organ published by the Ewing-Merkle Electric Company of St. Louis. The article seems so good that we reproduce it in full:

"The need of a few simple rules for laying out lighting installations is one often expressed by lighting solicitors, but unfortunately illuminating engineering cannot be reduced to any rule of thumb. To arrive at exact results, exact calculations must be made.

"There are instances, however, where it is imperative to give some sort of rough approximation as to what certain units will do under average conditions. Customers frequently demand such statements and a refusal upon the part of the solicitor to supply it is taken as a sign of weakness. To supply ready-reference rules that will serve in such emergencies, our Engineers have evolved the following, which, while not pretending to be accurate, will serve in approximating simple installations:

"When Holophane bowl reflectors are used, practically uniform illumination can be obtained, if the distance between outlets is twice the height of lamps above the plane to be illuminated.

"The average value of illumination in foot-candles can be obtained in the case of tungsten lamps by dividing the watts per outlet by the square of the height above the plane. Thus, with a 100-watt tungsten lamp at each outlet, ten feet above the plane, the illumination will be one-foot candle. Placing the lamps closer together than stated in the above rule will not affect the uniformity of illumination but will increase the intensity. This increase in intensity will be directly proportional to the increase in watts per square foot.

"For other types of incandescent lamps the same formula can be used as for tungsten lamps, the results being reduced as follows:

"Tantalum 62 per cent of tungsten; Gem 50 per cent of tungsten; 3.1 watt carbon, 40 per cent. of tungsten; 3.5 watt carbon, 36 per cent of tungsten.

"For instance, with one 100-watt Gem lamp and bowl reflector at each outlet, six feet above the plane, divide 100 by 36, which is 2.8, and take 50 per cent of this, or 1.4, as the foot candles on the plane.

"This general rule serves only for average conditions and at best is only an approximation. Where reflection from walls is extremely high the illumination will be higher, and where a large number of lamps are used in one room, distant lamps will also have a tendency to increase the illumination.

"As to the illumination required for various classes of service, this varies with taste and conditions, but in general the following table, taken from data supplied by the Engineering Department of the National Electric Lamp Association, will serve as a guide:

"Required illumination for various Classes of Service:

Class of Service.	Light Intensity in *Foot-Candles.
General illumination of Auditoriums	1 to 3
General illumination of Theatres...	1 to 3
General illumination of Churches...	2 to 3
Reading Rooms	1 to 3
General illumination of Residences.	1 to 2
Desk illumination	2 to 5
Postal Service	2 to 5
Bookkeeping	3 to 5
Stores, General illumination.....	2 to 5
Stores, Clothing	4 to 7
Drafting	5 to 10
Engraving	5 to 10

"* A foot-candle is the intensity of illumination given by a standard candle at a distance of one foot, or by a 16 cp. incandescent lamp when measured in the direction at which it gives 16 cp. at a distance of four feet, as the intensity of light varies inversely as the square of the distance."

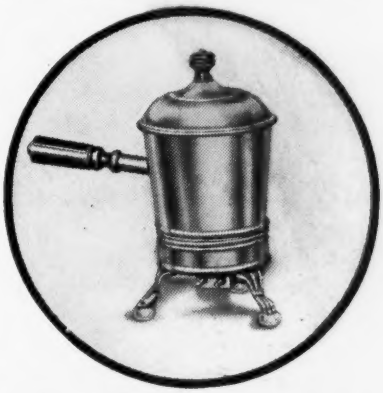
Buffalo Industrial Show

Buffalo is having an Industrial Show from Oct. 6 to 16, which eclipses all previous efforts. A large arch has been erected which is illuminated and decorated with thousands of electric lamps, and other street illustration is being done near the Arsenal, in which the show is held. Main street also will be illuminated with some 15,000 lamps, while the Arsenal interior will be illuminated with large electroliers. The Buffalo General Electric and the Cataract Power & Conduit Company both show interesting exhibits.

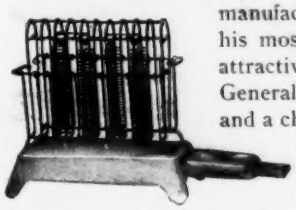
Electrical Progress Department

Electrically Heated Devices for Holiday Trade

An impetus has been given the sale of the popular household devices such as percolators, chafing-dishes, tea-kettles, etc., through the large choice of designs now



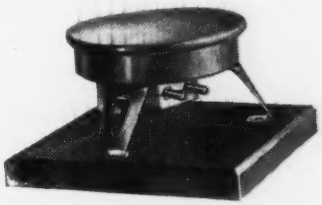
available. Hitherto manufacturers have taken one or two styles of heating devices and equipped them electrically; but arrangements have been recently made with a large manufacturer to equip his most popular and attractive designswith General Electric units, and a choice of thirty designs and finishes of electric percolators, tea-kettles and chafing-dishes will be ready for the Holiday trade.



There are a number of novelties in the electric heating line, prominent among which is the new radiant toaster, a fascinating device. Toast may be made on the dining-table, at the bed-side or wherever electricity is available and the whole operation is visible. Turn the switch and the wire heats up to a white heat, the toasting process being at all times under control.

The electric cigar lighter is a very attractive device. The continuous pendant type is intended for continuous service in cigar stands and similar places and operates an entire day at a cost of less than two cents.

The new design of water heater, shown in the accompanying illustration, will be found of great usefulness in a thousand different ways. It may be used as a milk-warmer, egg-boiler or for heating liquids generally. It is made of copper, heavily



riveted, and is available in pint and quart sizes. A larger size of heater for two, four or six quarts is suitable for preparing an entire dinner. A range of three heats allows a satisfactory regulation of the thermal effect.

Disk stoves are rapidly being adopted for small households. These stoves are remarkably quick and efficient, being of the encased disk unit type. These new stoves operate at a much greater activity (watts per square inch) for a given size than formerly, due not only to radical improvements in the design or application of the heating elements, but also to material and construction of the heating element itself.

Valuable Reference Sheet

A reference sheet containing the names and addresses of manufacturers and dealers selling complete motor-driven outfits equipped with Emerson motors has just been issued by the Emerson Electric Manufacturing Company of St. Louis. The list includes only firms who are prepared to furnish apparatus now in successful use and is printed for the information of electrical dealers and central station solicitors. It includes manufacturers of Adding and Computing Machines; Addressing Machines; Advertis-

ing Specialties; Air Compressors; Barrel Head Planers; Beer Pumps; Blowers and Exhaust Fans; Blue Printing Apparatus; Boiler Tube Reseating Outfits; Bookbinders' Machinery; Bottle Capping Machinery; Bottle Filling Machines; Bottle Labeling Machinery; Bottle Washers; Buffing and Polishing Outfits; Butchers' Supplies; Can Labeling Machinery; Candy Machinery; Carbonators; Clipping Machines; Coffee Mills; Coin Operated Machines; Coin Wrapping Machines; Copying Machines; Corn Poppers; Peanut Roasters; Electric Drills; Embossing Presses; Envelope Sealers' Exhaust Fans; Flexible Shaft Specialties; Electric Fountains; Furnace Blowers; Grinders; Hair Dryers; Heating System Regulators; Horse Grooming Machines; Humidifiers for Cotton Mills; Ironing Machines; Knife and Silver Polishing Machines; Laboratory Lathes; Mailing Machines; Marble Chisels; Meat Choppers; Meat Slicing Machines; Milk Testing Machines; Motor Generator Sets; Electrically Operated Musical Instruments; Office Accessories; Organs and Band Orchestrions; Organ Blowers; Paper and Circular Folders; Physicians' and Surgeons' Supplies; Player Pianos; Portable Electric Tools; Printers' Machinery; Water Pumps; Scientific Apparatus; Sewing Machines; Shoe Machinery; Shoe Polishers; Static Machines; Talking Machines; Typesetting Machinery; Vacuum Cleaners; Suction Carpet Cleaners; Massage Vibrators and Washing Machines.

Copies of this useful list will be supplied by the Emerson Company on request.

New Tungsten Clusters

The Benjamin Company's new tungsten fixture with hooded steel reflector is a development of the Benjamin 3-T tungsten cluster.

It has a 16″ white enameled steel reflector, deeply hooded to receive the cluster in such a manner that the lamps are in proper relation to the reflecting surface. The outlets are set at an angle of 16 degrees to the vertical. This slight angle not only does not endanger the filament of the lamps but adds materially to the lighting efficiency of the fixture, inasmuch as very little of the light of one lamp passes through the other lamps.

The cluster body is attached to the reflector by means of a flange. These flanges are furnished for ⅜″ or ½″ pipe; the former for indoor, the latter for outdoor

work. Two to four-light fixtures take 100-watt lamps, while the five-light fixtures take 40- or 60-watt lamps. The new fixtures are furnished either multiple or series.

Betts' Displays in Hudson-Fulton Celebration

Much has been written about the spectacular lighting of New York's Hudson-Fulton Celebration but little has appeared about the people who did the actual work. The displays were not entirely the work of the N. Y. Edison Companies, as has generally been understood; on the contrary, some of the most successful were designed and installed by contractors and sign manufacturers, and of these the installations of Messrs. Betts & Betts, 1360 Broadway, New York, were perhaps the most elaborate and successful.

The most important of the Betts displays was the large *Half Moon* erected over the Colgate factory in Hoboken. This blazing representation of Hudson's ship, with its waving flags was the centre of attraction upon the river.

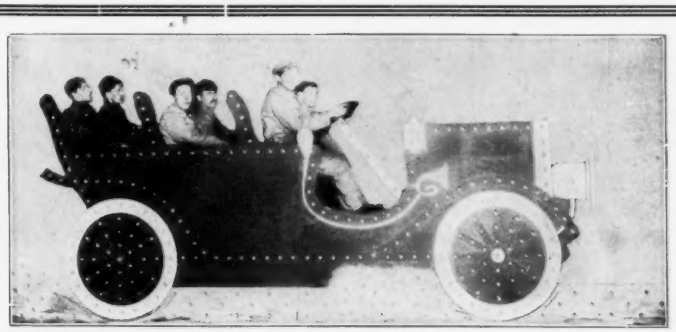
Other displays by this concern included those upon the Union League Club, Lichtenstein Millinery Comapny, Criterion Club, Col. Langdon's residence on Fifth Avenue, Netherlands Hotel, Hotel Impe-

rial, Hotel Woodward and a host of lesser installations. These displays were made up of streamers, set pieces, waving flags, eagles, crests and monograms. The Union League Club was decked out with 2200 feet of streamers, the words "Half Moon" in letters 9 feet high, "Hudson-Fulton, 1609-1807" in letters 5 feet high, a shield 22 feet high, an eagle 12 feet high and two 8-foot waving flags. This was perhaps the most elaborate private display on Fifth Avenue, and was one of the show features of the Celebration.

In the preparation of this work the Betts' three factories were run 24 hours a day and not a single contract failed of delivery. To show the speed with which the work was pushed through, four signs of 9-foot letters for the Collegiate Churches were completed and hung in two days.

This company has always boasted of its factory organization, but this job, the Betts are inclined to believe, is a record for prompt delivery. Central station men who have been delayed weeks, or even months, upon sign deliveries will be glad to know that such speed is possible when necessary.

Betts & Betts are now preparing a souvenir of the Celebration, showing photos in color of all their displays. The booklet will be both interesting and valuable for lighting men to show prospective sign customers. It will be ready immediately and will be sent free to anyone inquiring.



High] Grade
Steadily Burning
or Flashing

ELECTRIC DISPLAY SIGNS
and
ACCESSORIES

HALLER SIGN WORKS (Inc.) 704 S. Clinton Street, CHICAGO

Start a campaign now for cooking day load

Millions of Electric Flat Irons are in use today in American households, but the great majority of people have never considered the use of electricity for cooking. Here is a promising field for Central Stations. Electric Cooking Devices offer an unusual opportunity to increase the sale of current at a time of day when additions to the load curve result in profit without additional plant investment.

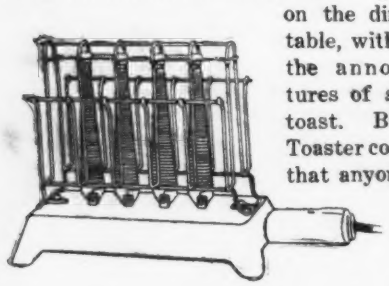
What Electric Cooking Business Means to a Central Station

Sit down and figure out what a properly developed heating business means. Take the Electric Toaster for example. The current consumption of this device, on an average use of 15 minutes per day, would amount to 54 kw. hours per year. One hundred Toasters in use means 5400 kw. hours. One thousand Toasters in use means 54,000 kw. hours. Every Central Station can sell 100 Toasters — many can sell 1000 — some can sell several times that number.

This for the Toaster alone. Add the other devices and the possibilities grow larger in proportion.

The G. E. Radiant Toaster is an Entering Wedge

It's an easy matter to sell a G. E. Radiant Toaster. Every housewife will be attracted by its handsome appearance and the ease with which delicious toast can be made "just right" on the dining-room table, without any of the annoying features of stove-made toast. Besides, the Toaster costs so little that anyone interested will readily buy it.



Other Cooking Devices will Follow

After using the Toaster, your customers will find that G. E. Electric Cooking Devices are both simple and practical. The introduction of others, such as Chafing Dish, Coffee Percolator and Water Heater will be easy. And these will pave the way for Complete Cooking Outfits.

Electric Heating Devices for Holiday Gifts

Many people are now thinking about suitable presents for their friends. Why not Electric Heating Devices? Bring their merits for this purpose to the attention of your customers. To most people Electric Heating Devices are a pleasing novelty. To all they offer an opportunity of making a present which is at once an ornament as well as a practical addition to any electrically-wired home.

Prepare Now for the Holiday Trade

Christmas shopping has already begun and will soon be in full swing, bringing an exceptional opportunity to push Electric Cooking Devices. Prepare for it by obtaining a stock of General Electric Devices.

General Electric Company

New York Office:
30 Church Street

Principal Office:
Schenectady, N. Y.

Sales Offices in All Large Cities

2283

FEDERAL ELECTRIC DISPLAY SIGNS

UNIQUE FLASHER EFFECTS
ALL STEEL - ANY SIZE

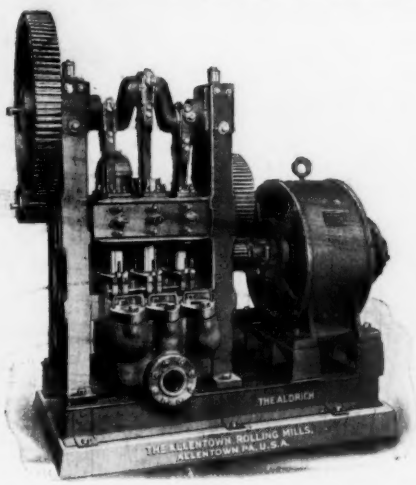
Completed and thoroughly tested in our own shops. As effective by day as by night.

WRITE FOR BULLETIN No. 207

FEDERAL ELECTRIC COMPANY

Lake and Desplaines Streets **CHICAGO**

The Aldrich Vertical Triplex ELECTRIC PUMP



"The Standard of Efficiency"

Central Station Men:

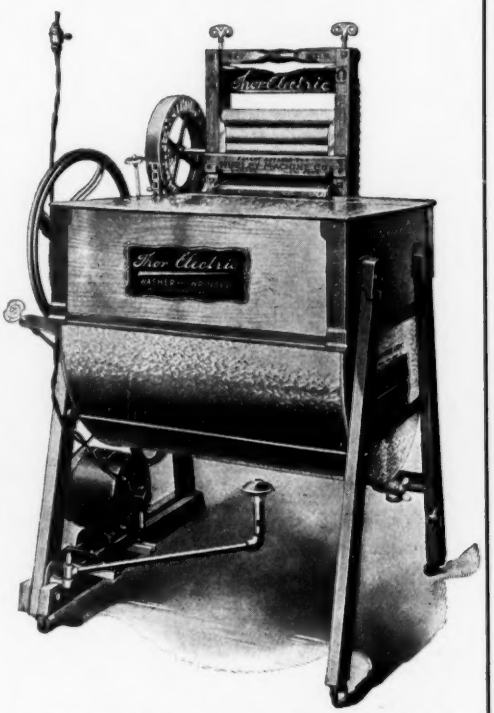
Do you know the many uses that Electric Pumps can be adapted to? We will work with you if you will ask for our Co-operation and Pump Data.

The Aldrich Pump Department, Allentown, Pa.

Designing and Selling for

THE ALLENTOWN ROLLING MILLS and BIRDSBORO STEEL FOUNDRY & MACHINE CO.

Discuss it with Your Wife



HOW do you **personally** know whether the Thor Washer is good or bad? Have you ever given it a **practical** test in **your** home?

Until it has been used in his **own house** week after week and his own wife has studied **it, no** man can pass judgment on the Thor Washer.

Its success as a **revenue producer** for the central station depends on its practical utility **in the home.** Your wife knows more about that than you do, — ask **her?**

The Thor Washer does **everything** but hang out the clothes — it washes them, wrings them and the water is kept hot. Also it takes the curse off wash day,— the maid's temper is not strained, and it saves much time and labor.

Let us prove it in **your own home,** Mr. Central Station Man.

Every Thor means another motor.

Hurley Machine Company

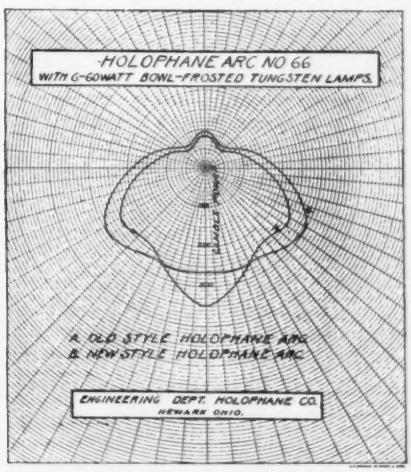
CHICAGO
Monroe and Clinton Sts.

NEW YORK
Flatiron Building

Note this Difference in Light Distribution
between the Old and the New

HOLOPHANE ARCS

The New Holophane Arc


HOLOPHANE ARC NO 66
WITH 6-60WATT BOWL-FROSTED TUNGSTEN LAMPS.
A. OLD STYLE HOLOPHANE ARC
B. NEW STYLE HOLOPHANE ARC
ENGINEERING DEPT. HOLOPHANE CO.
NEWARK OHIO.

Comparative Curve Showing Distribution of Old and New Holophane Arcs

The NEW Holophane Arcs for tungsten lamps embody the following RADICAL improvements:

New Equipment of Glassware, which gives much better USEFUL distribution of light.

Separable cluster body which allows the Arc to be TAKEN APART for cleaning without breaking the electrical connection.

Collapsable canopy which does away with the need of a long nipple at the ceiling.

Special brush brass finish which gives the unit a richer and more artistic appearance.

Holophane Arcs are shipped complete, one in a box, with full instructions for assembling. They are convenient to stock, easy to install, and have a wide market for all classes of commercial lighting.

Bulletin No. 51 contains a large amount of useful data which every practical lighting man should have. It is FREE.

HOLOPHANE COMPANY

SALES DEPARTMENT

NEWARK, OHIO

NEW YORK BOSTON CHICAGO SAN FRANCISCO

People Who WANT the

HOOVER ELECTRIC SUCTION SWEEPER

No. 5. The Business Man

The **Hoover Suction Sweeper** appeals as a **business** proposition to the up-to-date man. Labor-saving machinery in the shop or office is universal; why should not labor-saving machinery be employed in the home? Every **business** man will agree that it **should** be—and your sale of a Hoover Sweeper is made.

The light, portable **Hoover** does its work quickly, easily. It is the lowest priced of any **good** cleaning device. It is the simplest and most practical cleaner. It is the most generally useful cleaner—used day in day out like the old-fashioned carpet sweeper.

That's a **big** advantage from your standpoint. The cumbersome, expensive vacuum outfit is used but once a week: the **Hoover** is used daily. The high-priced apparatus can only be sold to a few well-to-do people: the **Hoover** can be sold to any of your customers. The vacuum apparatus is easily choked up: the **Hoover** will suck up anything within reason—matches, shavings, threads, strings, scraps of paper or cloth, cigar butts—anything.

All we ask or want is that you will put the **Hoover** through the most rigid trial. Use is proof.

Hoover Sweeper pays **two** profits—a profit on the machine and a profit on the current. You can have one or both—as you please.

We want Central Stations to demonstrate and handle our Sweepers.
We want Central Station solicitors to sell them at a handsome profit.
We want department and hardware stores for agents.

The Electric Suction Sweeper Co.

NEW BERLIN, OHIO

Benjamin TUNGSTEN FIXTURES

With Hooded Enamel Steel Reflector

Cat. No.		List Price
0532	2-Light,	$4.55
0533	3-Light,	4.80
0534	4-Light,	5.05
0535	5-Light,	5.30

Cat. No. 0534

Above Tungsten Fixtures, Nos. 0532-0535, consist of cluster, standard 12 in. stem of ⅜ in. iron pipe and ¾ in. brass casing, 16 in. deeply hooded enameled steel reflector, 4½ in. x 4 in. canopy, and crowfoot. Outlets are at an angle of 16 degrees with the vertical. 2 to 4-light fixtures take 100-watt lamps; 5-light fixtures, 40 or 60-watt lamps. Prices do not include wires or lamps. Standard finish is brushed brass.

SUBSTANTIAL IN CONSTRUCTION FINISHED IN APPEARANCE
EFFECTIVE IN OPERATION

WRITE FOR DESCRIPTIVE CIRCULAR AND DISCOUNTS

Benjamin Electric Mfg. Co.

New York **507 W. Jackson Boulevard, Chicago** **San Francisco**

Individual Representation

Live Central Stations will find our proposition the best. We present, in an attractive manner, Central Station installations from all over the country, and invite all stations using our magazine to send in photos and data for presentation in our columns. We do not try to interest the average consumer of your product in wireless telegraphy and other subjects which will bring you no revenue, but in the Commercial and Domestic applications of your service.

Ten leading Central Stations are now using

The Electric City Magazine

monthly for distribution among their customers, actual and prospective, with good results—Why not you? Each issue contains a full-page, right-up-to-the-minute announcement of the subscribing company **on the Back Cover.** We will prepare your advertisement for you each month, free of additional charge, if you desire.

With the current October issue we begin a series of twelve lessons on Practical Electricity, by Joseph G. Branch, B. S., M. E., in themselves worth the entire cost, and of general interest to the school boy as well as to the merchant who is desirous of learning more about his electrical service.

There is just time to enter your order to commence with the October number containing the first of above articles, and continuing through the Holidays. Write us today.

Electric City Publishing Company

86 Market Street, Chicago

The Buckeye Organization

ORGANIZATION is not a number of people held together by authority and red tape: it is a working unit dominated by a spirit of loyalty. The Buckeye organization has taken twenty years to weld and its loyalty extends to each customer. "Take care of the customer" is our slogan—at all hazards and at any cost. Our shipping room never closes till the last order is out; our office force forgets lunch and dinner and sleep, if necessary, to insure service. Buyers whose business has not had scrupulous attention elsewhere will appreciate dealing with the Buckeye organization.

THE BUCKEYE ELECTRIC CO.

MAIN OFFICE AND WORKS:
CLEVELAND, OHIO

CHICAGO:
23 East Lake Street

PITTSBURG:
714-715 Ferguson Building

DALLAS:
220-221 Linz Building

Pass round your "Dollar Ideas" and help the other fellow level his peak.

Send them in to SELLING ELECTRICITY and we will see that he gets them.

DID YOU EVER

STOP TO THINK

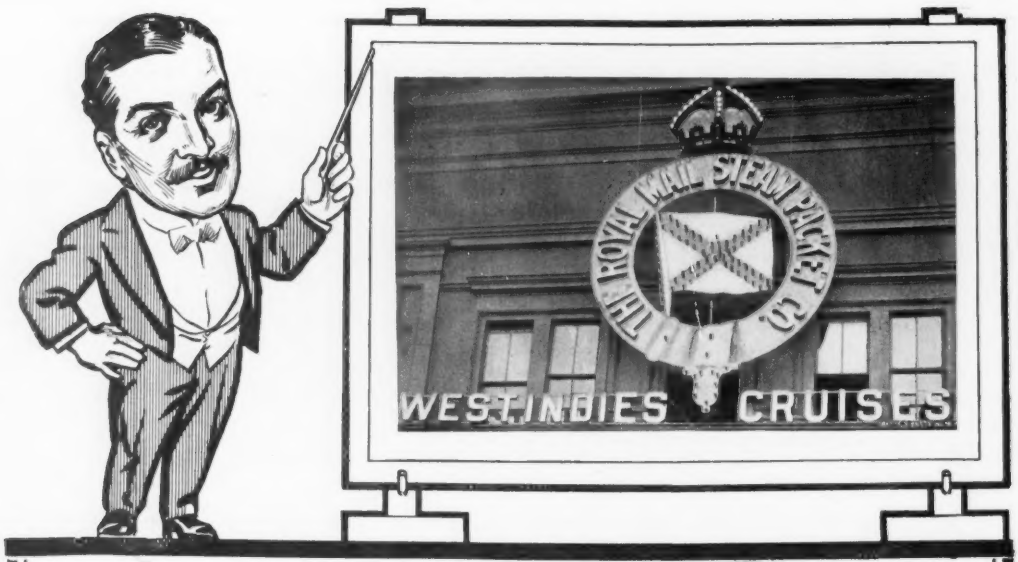
That the right device sold to a customer advertises you? When you sell a "*Simplex*" you have a guarantee for Quality and the result of fourteen years' experience in Electric Heating. The enamel method used only in the Simplex Devices insures efficiency and durability with an even, reliable heat where it is most needed. An Electric Iron, Chafing Dish, or Water Cup, all are quick sellers and in design and finish they are the highest. The "*Simplex*" has become the standard of the world and wants to help you sell. Write for catalog "K" and let us furnish you with printed matter.

SIMPLEX QUALITY

SIMPLEX ELECTRIC HEATING CO.

Cambridge, Mass.

Monadnock Block, Chicago
612 Howard St., San Francisco



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SIGNS THAT SELL

The signs we build are more than mere arrangements of electric lamps, sheet iron and paint. They **are studied efforts of salesmanship.**

The Proof of a Sign is in the Goods it Sells—It has no Value but in Sales

Our three factories are turning out more and more signs for Central Stations. We know that we can satisfy **your** customers because we build signs with that purpose. With the largest electric works in this country and manufacturing our own flashers, receptacles and color caps, we can guarantee our product absolutely.

Our Signs are Right Because We make them Right

Which is the reason why practically all the big signs for the Hudson-Fulton Celebration (See Page 184) were built by

BETTS & BETTS

INCORPORATED

Electrical Advertisers **1360-1366 Broadway, New York City**

Cable Address, "Bettsonia." W. U., Lieber's and Private Codes. Also Branches or Agents in all parts of the world.